ORDER NO. [illegible]084C8

Service Manual

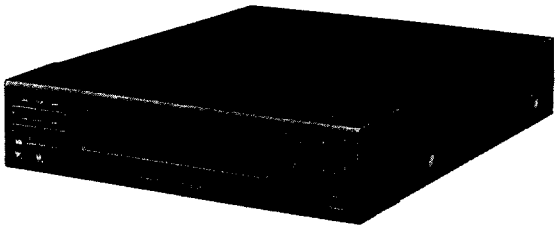
Compact Disc Player

Compact Disc Player

SL-CH7

Color

(K)	Black Type



Areas

Country Code	Area	Color
(E)	Continental Europe.	(K)
(GC)	Third Region	

System: SC-CH7

NEW MECHANISM SERIES (S0DD110Z)

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

■ SPECIFICATIONS
(DIN 45 500)

■ AUDIO

Frequency response	2 Hz~20 kHz (±1 dB)
Wow and flutter	Below measurable limit

■ PICKUP

Wavelength	780 nm

■ GENERAL

Power consumption	17 W
Dimensions (W×H×D)	215×55×295 mm (8 15/32" × 2 5/32" × 11 5/6")
Weight	2.0 kg (4.4 lb.)

Notes:
1. Total harmonic distortion is measured by the digital spectrum analyzer.
2. Specifications are subject to change without notice.
3. Weight and dimensions shown are approximate.

System	Tuner	Amplifier	CD player	Cassette Deck	Speakers
SC-CH7	ST-CH7L	SU-CH7	SL-CH7	RS-CH7	SB-CH7

Technics / Panasonic

(E) (GC)

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■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 µW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laserd diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

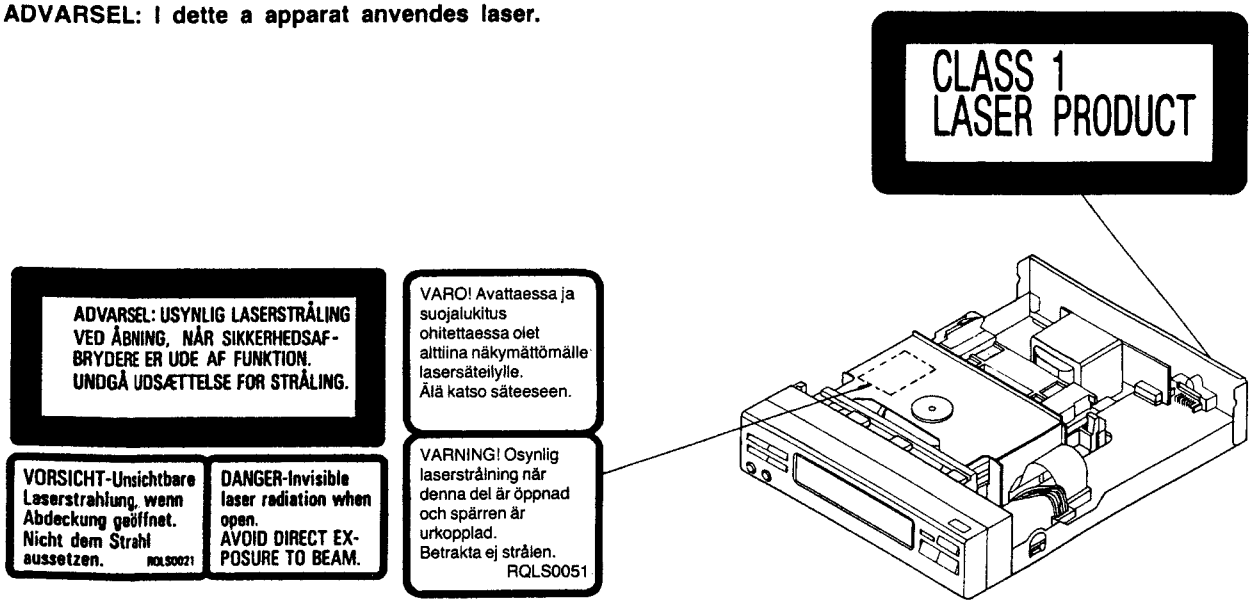
ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780 nm
Maximale strahlungsleistung der lasereinheit: 100 µW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

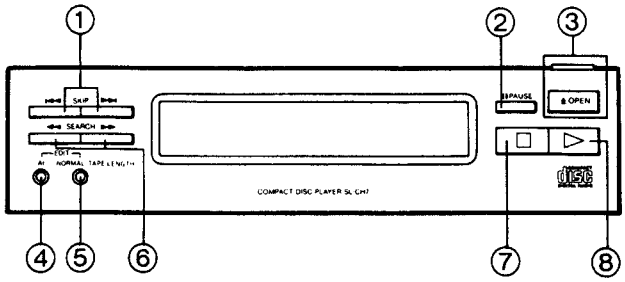
1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.


CLASS 1
LASER PRODUCT
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen. RQLS0021
DANGER-Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. RQLS0051

Note:
Refer to the service manual for Model No. SU-CH7, Order No. AD9104082C8 for information on ACCESSORIES. INSTALLATION OF THE SYSTEM, CONNECTIONS and PACKAGING.

■ DISASSEMBLY INSTRUCTIONS



Compact disc player: control section

① **Skip buttons (|◀◀ SKIP ▶▶|)**
Press one of these buttons briefly to move the pickup (backward and forward) to the beginning of a specific track.

② **Pause button (❚❚ PAUSE)**

③ **Disc tray open/close button (▲ OPEN, ▲ OPEN/CLOSE)**
Used for opening and closing the disc tray.

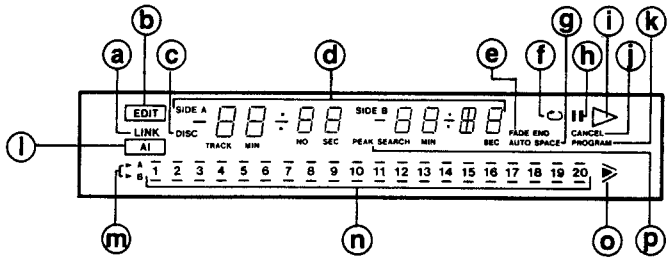
④ **AI edit-recording button (AI)**
This button is used to make an AI edit-recording.

⑤ **Edit mode button (NORMAL/TAPE LENGTH)**
This button can be used to choose one of the edit modes or to specify the tape length to be used.

⑥ **Search buttons (◀◀ SEARCH ▶▶)**
Use these buttons to move the pickup forward and backward.

⑦ **Stop button (□)**

⑧ **Play button (▷)**



Compact disc player: display section

ⓐ **Link indicator (LINK)**
Illuminates when the unit is in a condition the disc link is possible.

ⓑ **Edit indicator (EDIT)**
Illuminates when edit-recording a CD.

ⓒ **Disc indicator (DISC)**
Illuminates when a disc has been loaded.

ⓓ **Multi-display**
This display shows the track number and elapsed play time of the current track, or the remaining time of the tape while the unit is in the CD-edit mode. ("SIDE A" or "SIDE B" illuminates.)

ⓔ **Fade end indicator (FADE END)**
Illuminates when the unit is normal edit mode, and illuminates to show fading at the end of the tape.

ⓕ **Repeat indicator (↻)**
Illuminates when the repeat mode is activated.

ⓖ **Auto space indicator (AUTO SPACE)**
Illuminates during edit-recording of compact discs, and shows that the auto space function is activated.

ⓗ **Pause indicator (❚❚)**
Illuminates when the pause mode is activated.

ⓘ **Play indicator (▷)**
Illuminates when the play mode is activated.

ⓙ **Program cancel indicator (CANCEL)**
Illuminates when the programmed track can be cancelled.

ⓚ **Program play indicator (PROGRAM)**
Illuminates during program play.

ⓛ **AI edit-recording indicator (AI)**
Illuminates when AI edit-recording mode is activated.

ⓜ **Tape side indicator (▶ A, ▶ B)**
Shows the tape side (A or B) to be recorded on when performing the edit-recording of compact disc.

ⓝ **Track number indicator (1–20)**
Shows the number of tracks.

ⓞ **"Over" mark (▶)**
This indicator illuminates if the total number of tracks on the disc is 21 or more.

ⓟ **Peak search indicator (PEAK SEARCH)**
Illuminates while the CD player automatically scans for the peak level on the CD.
When peak search ends, "PEAK" flashes to indicate the peak level.

■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

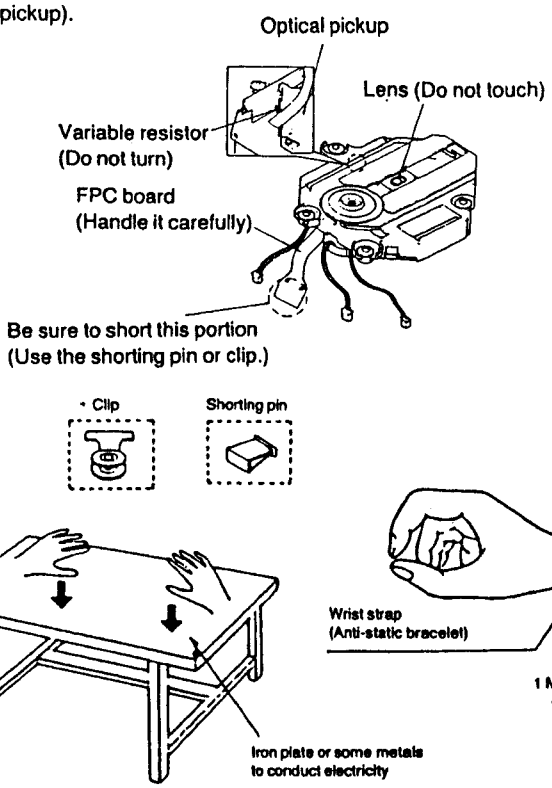
•Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

•Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



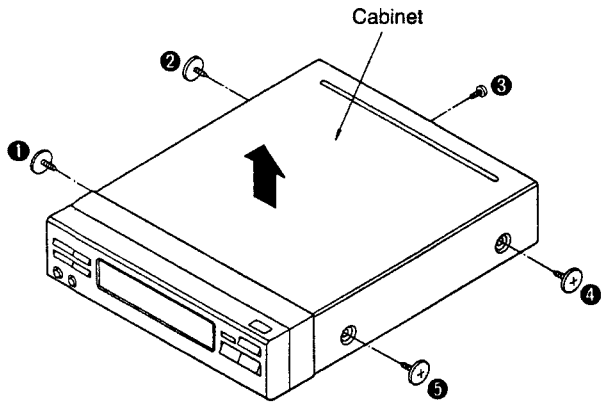
■ LOCATION OF CONTROLS

Warning: This product uses a laser diodes. Refer to caution statements on page 2.

ACHTUNG: •Die lasereinheit nicht zerlegen.
•Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

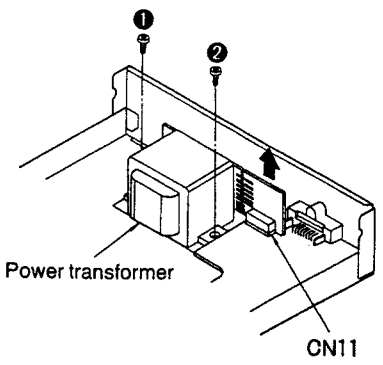
"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	Removal of the Cabinet
Procedure 1	



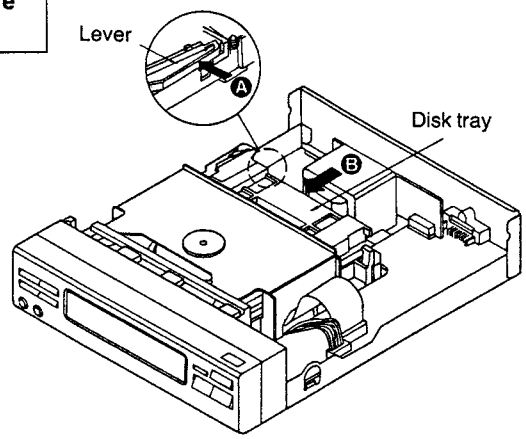
•Remove 5 screws (❶~❺).

Ref. No. 2	Removal of the Power Transformer
Procedure 1→2	

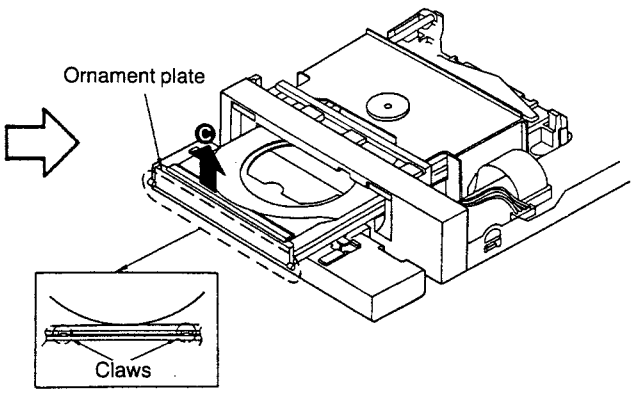


1. Remove 2 screws (❶, ❷).
2. Remove the connector (CN11) in the direction of arrow.

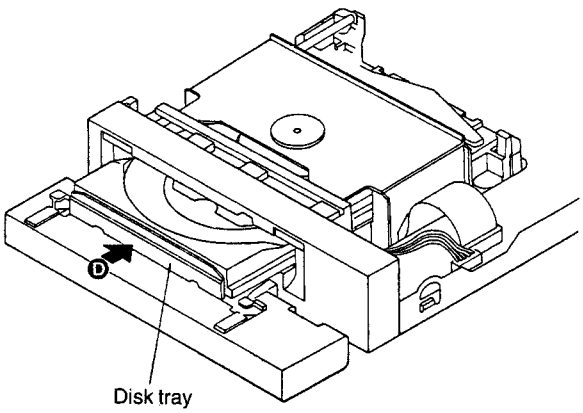
Ref. No. 3	Removal of the Front Panel Unit
Procedure 1→3	



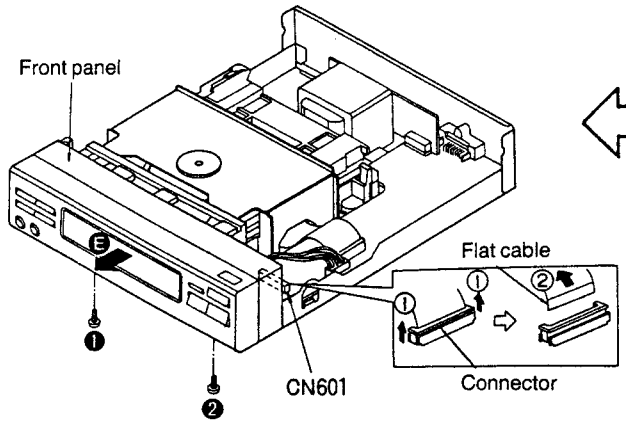
1. Push the rack gear slowly in the direction of the arrow until the disc tray comes up.



2. Remove the 2 claws and then the ornament plat in the direction of arrow Ⓒ.

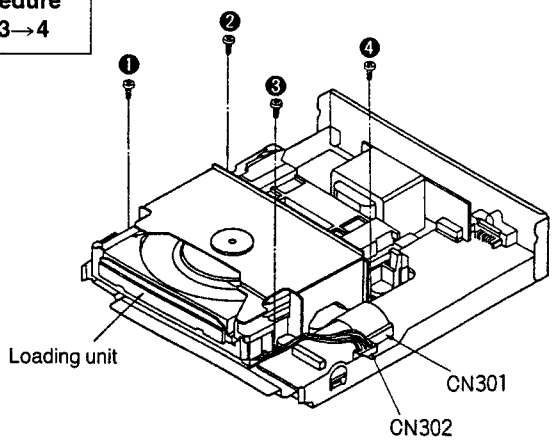


4. Push the disc tray in the direction of the arrow Ⓓ to insert it in the unit.



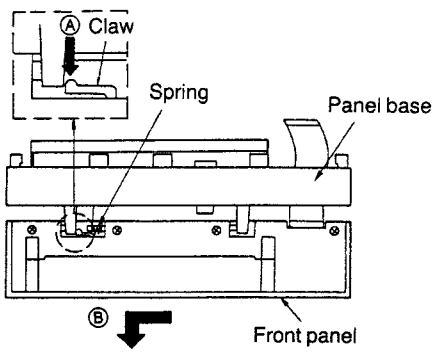
5. Remove the connector (CN601).
6. Remove the screws (❶, ❷).
7. Remove the front panel unit in the direction of arrow Ⓔ.

Ref. No. 4	Removal of the Loading Unit
Procedure 1→3→4	



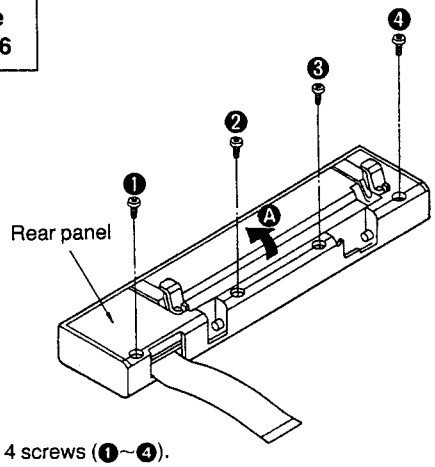
1. Remove 2 connectors (CN301, CN302).
2. Remove 4 screws (❶~❹).

Ref. No. 5	Removal of the Front Panel
Procedure 1→3→5	

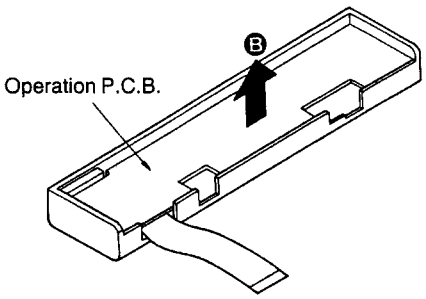


1. Remove the spring.
2. Push the claw in the direction of arrow Ⓐ and then remove the front panel in the direction of arrow Ⓑ.

Ref. No. 6	Removal of the Operation P.C.B.
Procedure 1→3→5→6	

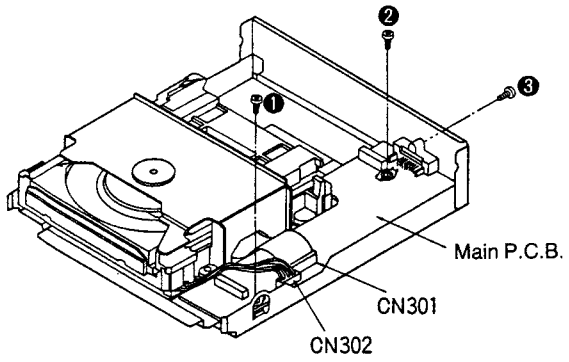


1. Remove 4 screws (❶~❹).
2. Remove the rear panel in the direction of arrow Ⓐ.



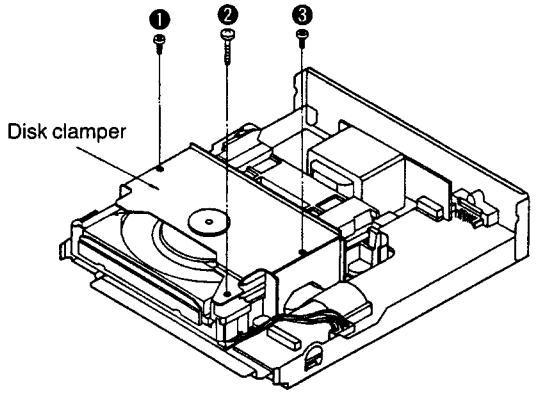
3. Remove the operation P.C.B. in the direction of arrow Ⓑ.

Ref. No. 7	Removal of the Main P.C.B.
Procedure 1→2→3→7	



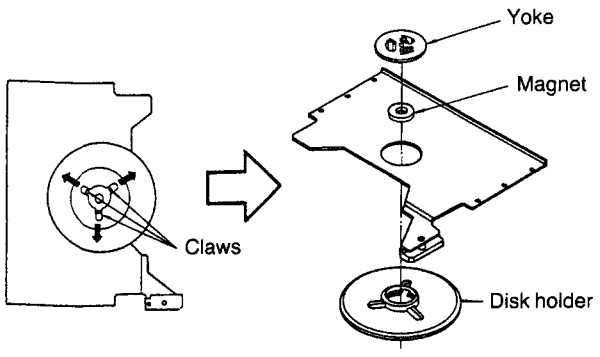
1. Remove 3 screws (❶~❸).
2. Remove 2 connectors (CN301, CN302).

Ref. No. 8	Removal of the Disk Clamper
Procedure 1→3→8	



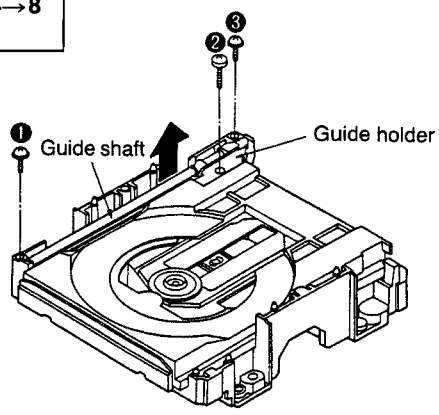
●Remove 3 screws (❶~❸).

Ref. No. 9	Removal of the Magnet and Holder
Procedure 1→3→8→9	



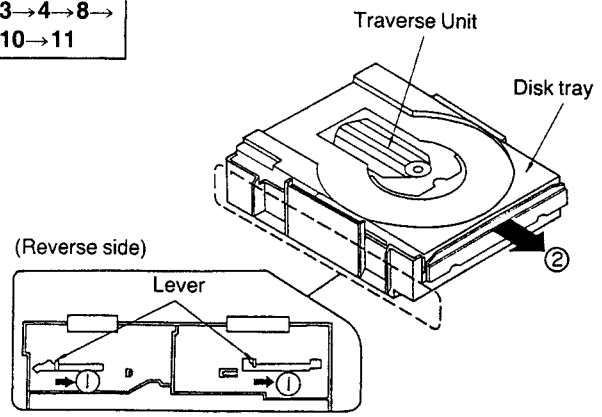
●Remove 3 claws.

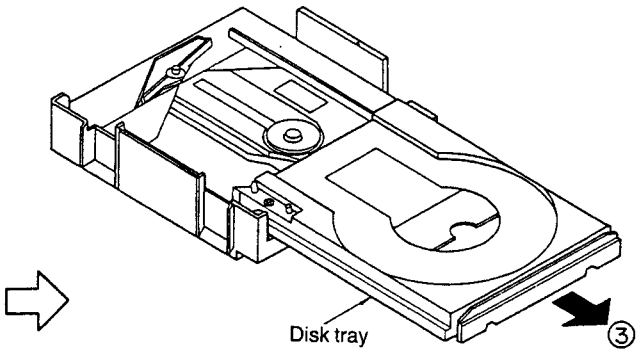
Ref. No. 10	Removal of the Guide Shaft and Guide Shaft Holder
Procedure 1→3→4→8 →10	



1. Remove 3 screws (❶~❸).
2. Remove the guide shaft and guide shaft holder in the direction of arrow.

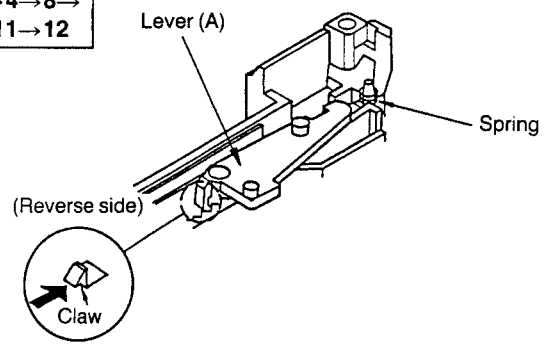
Ref. No. 11	Removal of the Disk Tray
Procedure 1→3→4→8→ 10→11	





1. Move the lever in the direction of arrow ① until the traverse unit goes down and the disc tray slightly slides in the direction of arrow ②.
2. Slide the disc tray in the direction of arrow ②.
3. Remove the disc tray in the direction of arrow ③.

Ref. No. 12	Removal of the Lever (A)
Procedure 1→3→4→8→ 10→11→12	



1. Remove the spring.
2. Push the claw in the direction of arrow.

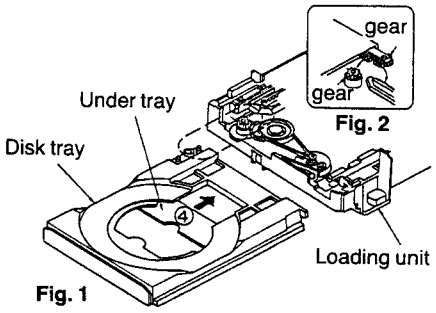
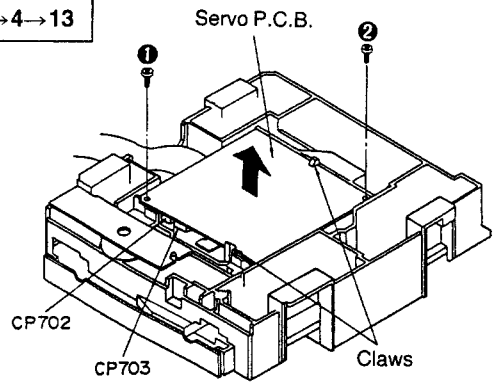


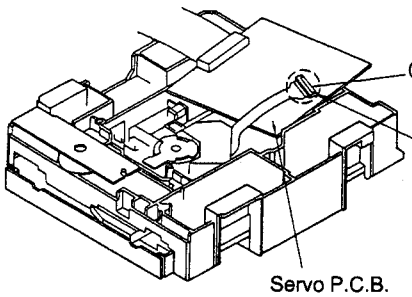
Fig. 1

Fig. 2

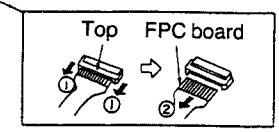
1. Slide the under tray fully in the direction of arrow ④. (Refer to Fig. 1.)
2. Slide the disc tray so that the gears bite each other as shown in Fig. 2.

Ref. No. 13	Removal of the Servo P.C.B.
Procedure 1→3→4→13	



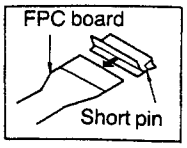


●Removal of the FPC board Push the top of the connector in the direction of the arrow ①, and then pullout the flat cable.



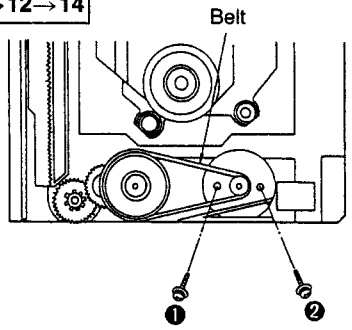
1. Remove 2 screws. (❶, ❷).
2. Remove 2 claws.
3. Remove the servo P.C.B. in the direction of arrow.
4. Remove 2 connectors (CP702, CP703).
5. Remove the F.P.C. board (S701).

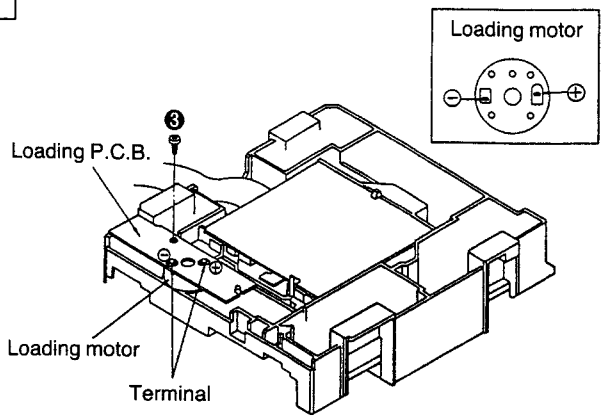
Note:
Insert a short pin into the traverse deck's FPC board.



Ref. No. 14	Removal of the Loading P.C.B. and Loading Motor.

Procedure
1→3→4→8→
10→11→12→14

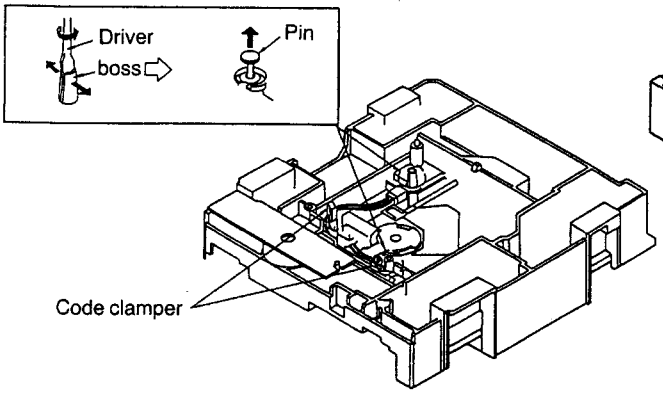


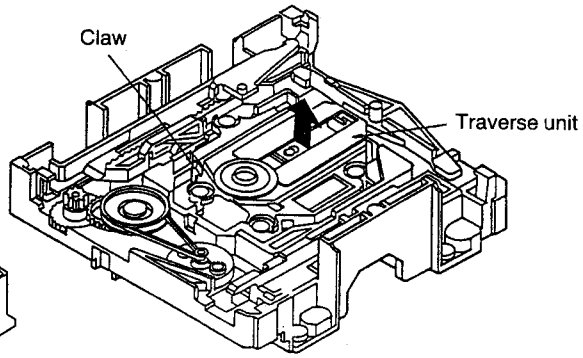


1. Remove the belt.
2. Remove 2 screws (❶, ❷).
3. Remove the screw (❸).
4. Unsolder the 2 terminal of loading motor.

Ref. No. 15	Removal of the Traverse Unit

Procedure
1→3→4→8→
10→11→13→15

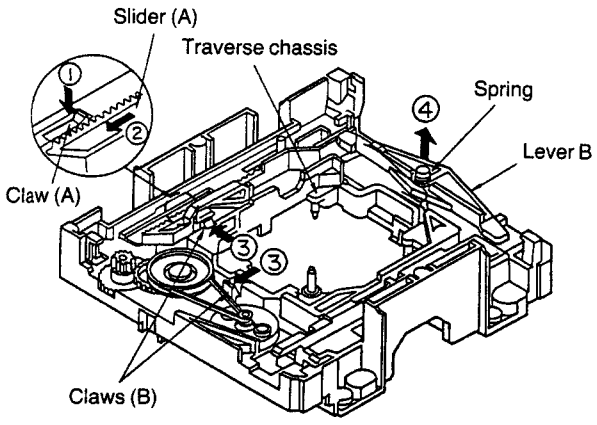




1. Release the cables from the code clampers.
2. Remove 2 pin in the direction of arrow.
3. Remove the claw and remove the traverse unit in the direction of arrow.

Ref. No. 16	Removal of the Traverse Chassis and Lever B

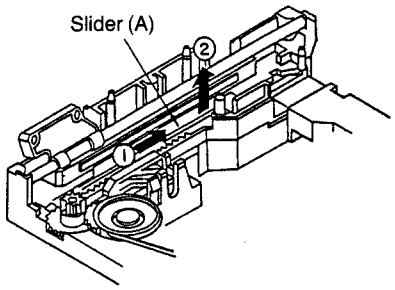
Procedure
1→3→4→8→
10→11→12→13→
15→16

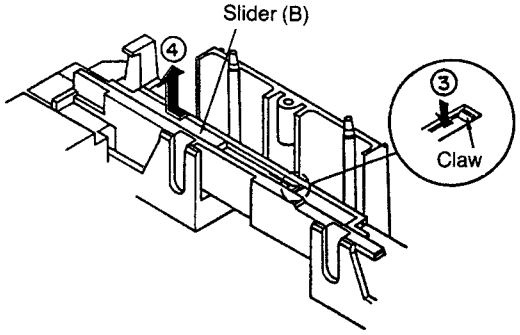


■ Remove the traverse chassis.
1. Push the claw (A) in the direction of arrow ①, and then move the slider (A) in the direction of arrow ②.
2. Push 2 claws (B) in the direction of arrow ③, and then remove the traverse chassis.

■ Remove the lever (B)
1. Push the claw (A) in the direction of arrow ①, and then move the lever (A) in the direction of arrow ②.
2. Remove the spring.
3. Remove the lever (B) in the direction of arrow ④.

Ref. No. 17	Removal of the Slider (A) and Slider (B)
Procedure 1→3→4→8→ 10→11→12→ 13→15→16→17	

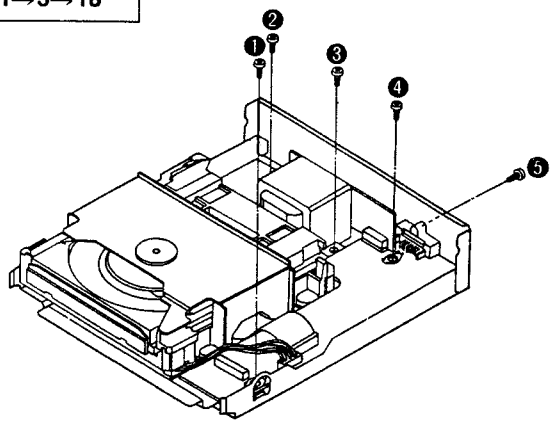




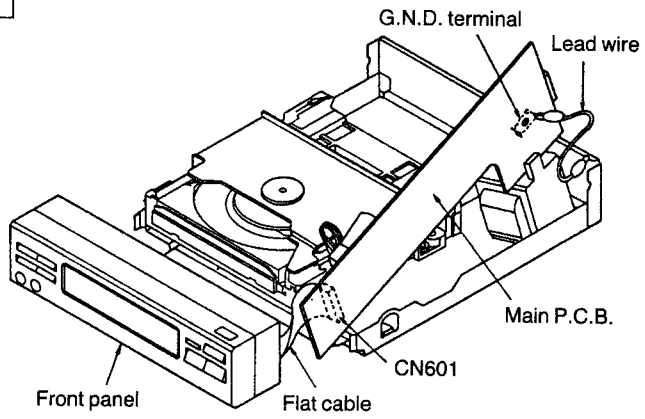
■ Removal of the slider (A)
•Move the slider (A) in the direction of arrow ①, and remove the lod (A) in the direction of arrow ②.

■ Removal of the slider (B)
•Push the claw in the direction of arrow ③, and remove the slider (B) in the direction of arrow ④.

Ref. No. 18	Check of the Main P.C.B.
Procedure 1→3→18	



1. Remove 5 screws (❶~❺).



2. Connect the flat cable to CN601 as shown in figure.
3. Connect the G.N.D terminal to the chassis by the lead wire.
4. Check the main P.C.B. as shown in the figure.

Ref. No. 19	Check of the Operation P.C.B. and Servo P.C.B
Procedure 1→3→5→6 →19	

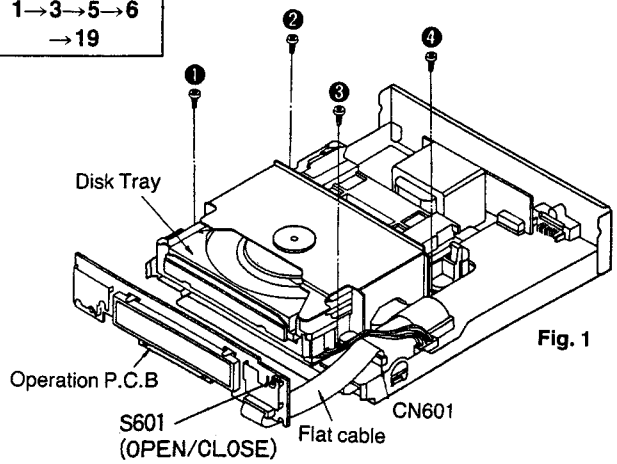


Fig. 1

1. Connect the flat cable to CN601 as shown in Fig. 1.
2. Remove 2 screws (❶~❹).
3. Place the loading unit sideways as shown in Fig. 2.

Note:
Make sure not to damage the flat cable.

To play disk

1. push S601 so that the disc tray comes up.
2. Place the test disk on the tray. Then, push S604 to set the test disc.
3. Push S604 to start the test disk play.

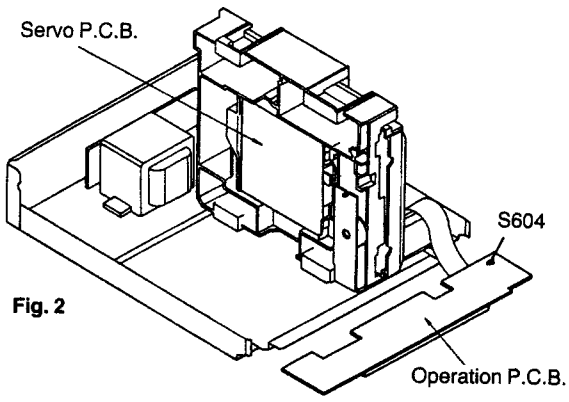
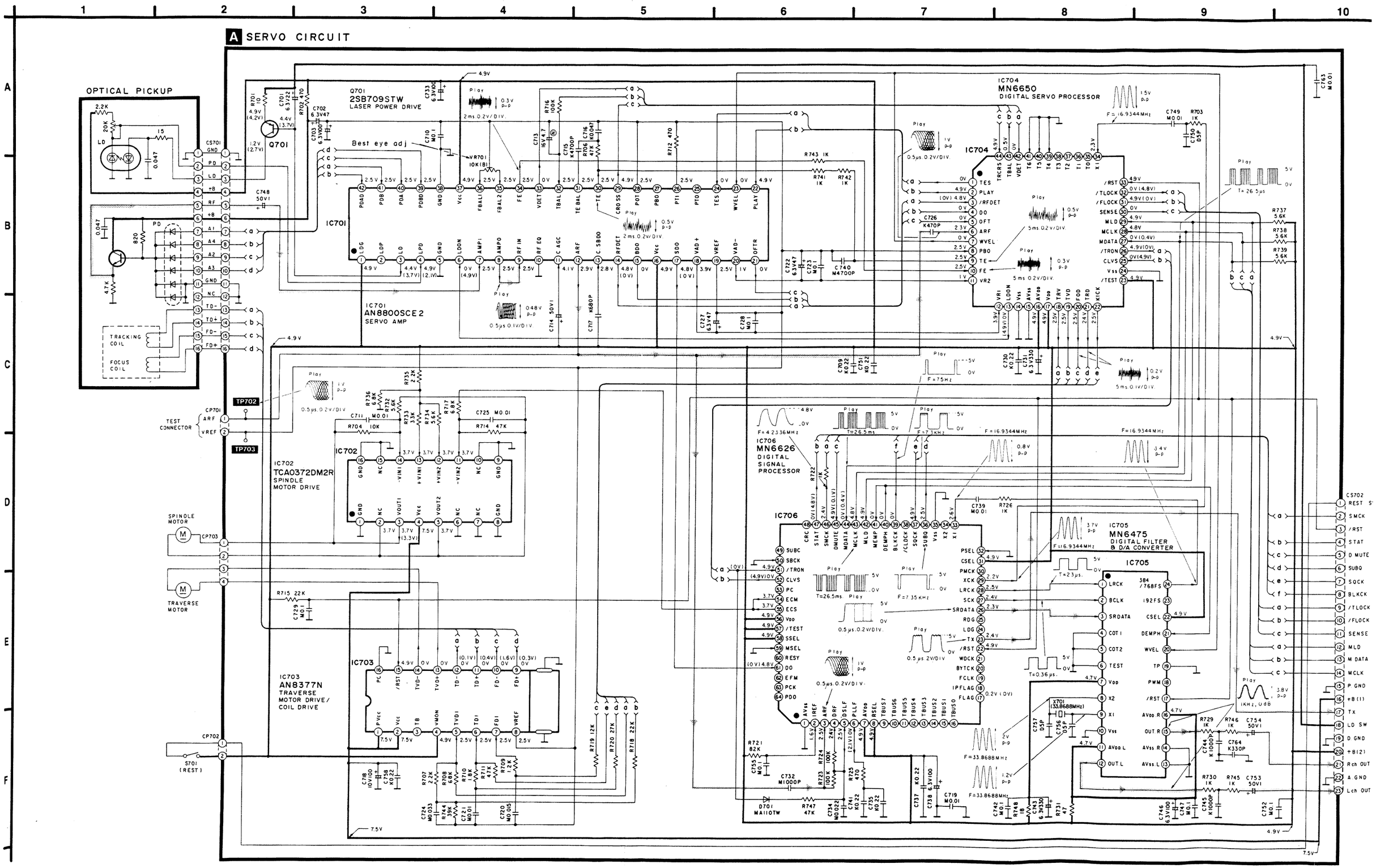
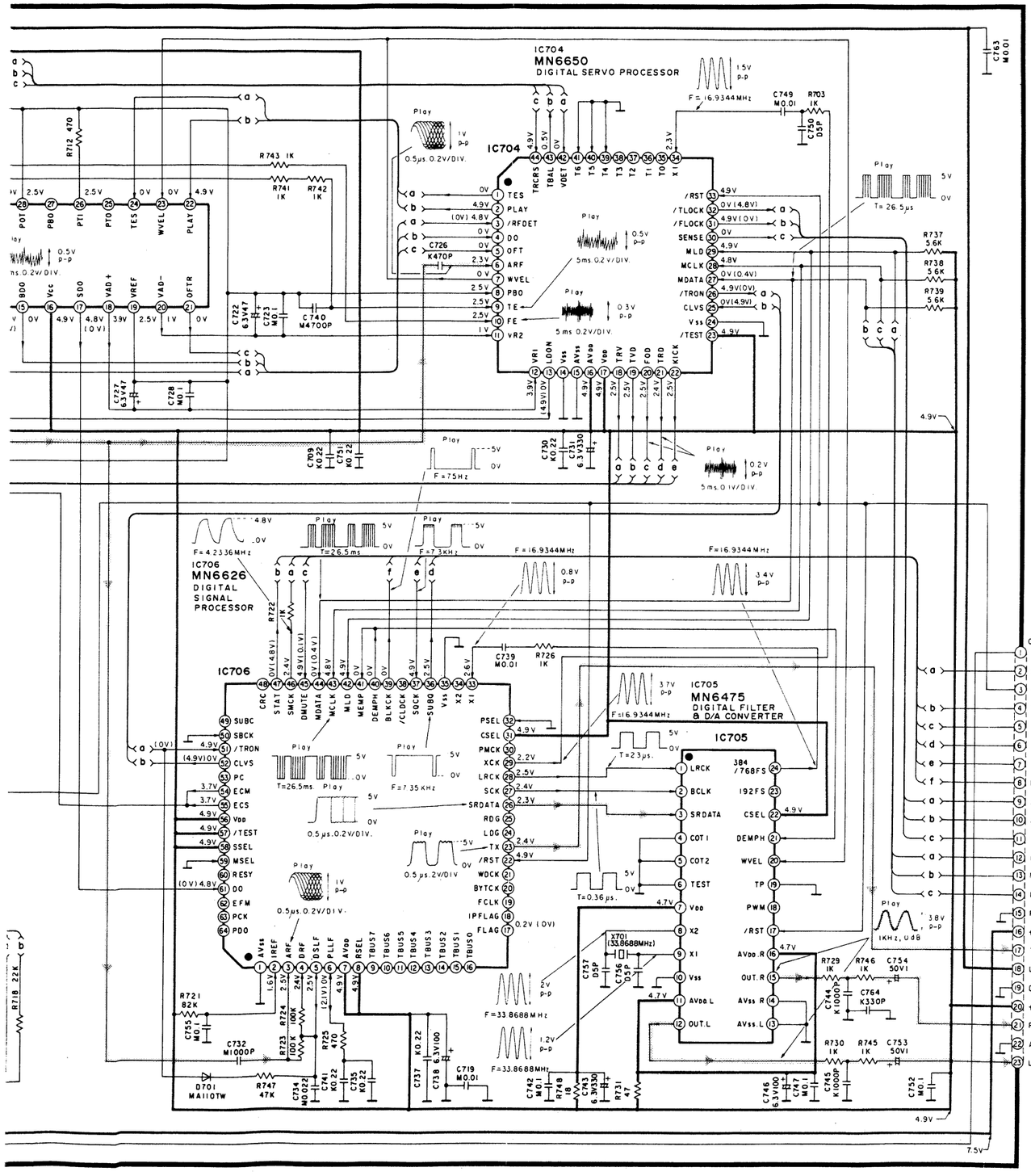


Fig. 2

4. Detatch the operation P.C.B. and the servo P.C.B. as shown in Figure.

■ SCHEMATIC DIAGRAM (Parts list on pages 35~38)





- **Notes:**
- S601 : Disk tray open/close switch.
- S602 : Pause switch.
- S603 : Stop switch.
- S604 : Play switch.
- S605, 606 : Skip switch. (S605: ⏮, S606: ⏭)
- S607, 608 : Search switch. (S607: ◀◀, S608: ▶▶)
- S612 : Edit mode switch (NORMAL/TAPE LENGTH).
- S613 : AI edit recording switch.
- S701 : Reset switch.
- S790, 791 : Desk tray open/close detection switch.

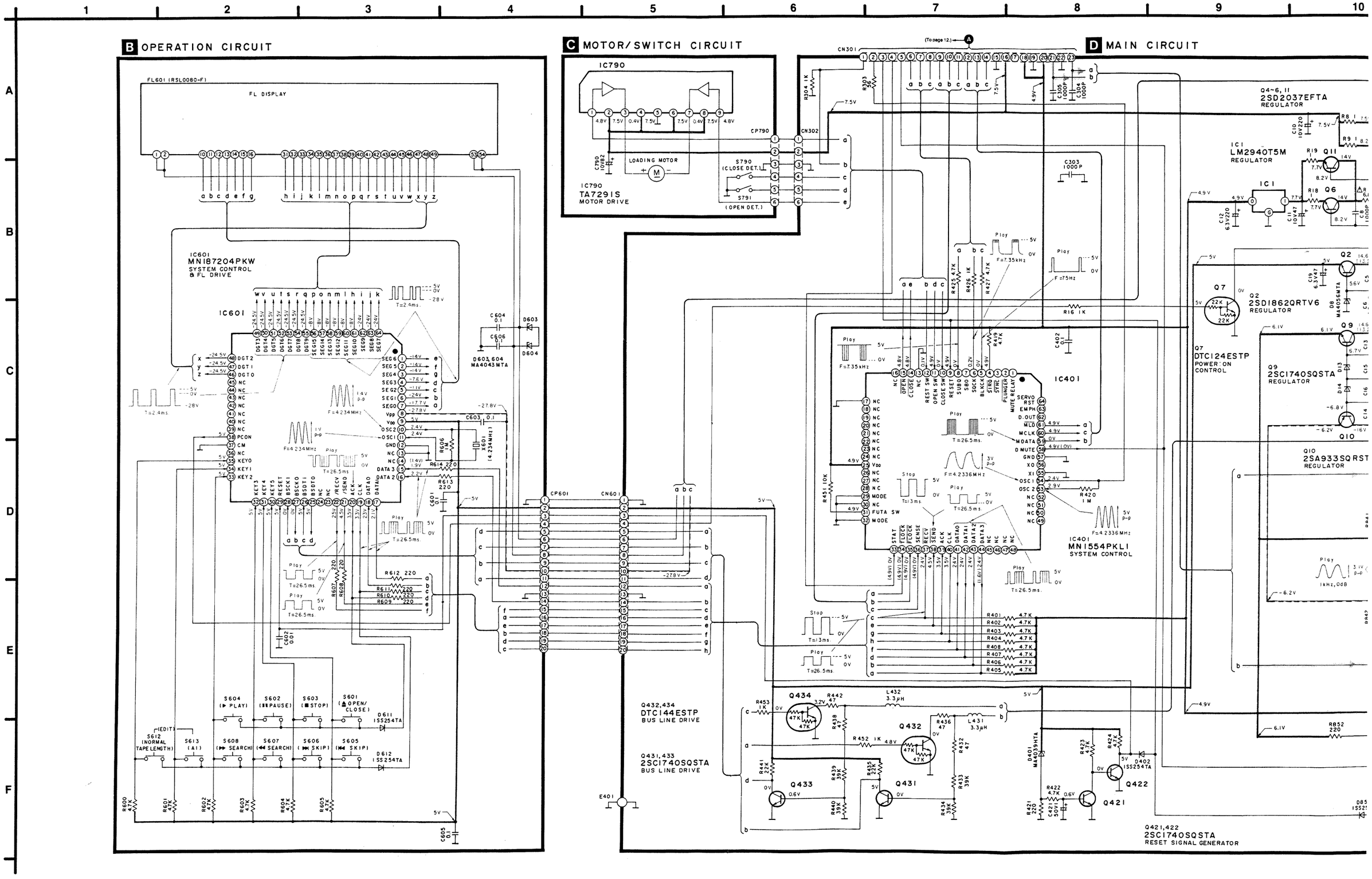
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
- *The parenthesized are the values of voltage generated during playing (Test disc 1 kHz, L+R 0 dB), others are voltage values in stop mode.
  - ▬▬ Positive voltage line
  - ▬ ▬ ▬ Negative voltage line
  - ▒▒▒ CD signal line
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- **This schematic diagram may be modified at any time with the development of new technology.**

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  - Cover the parts boxes made of plastics with aluminum foil.
  - Ground the soldering iron.
  - Put a conductive mat on the work table.
  - Do not touch the legs of IC or LSI with the fingers directly.

- The supply part number is described alone in the replacement parts list.

Ref No.	Production Parts No.	Supply Parts No.
IC1	LM2940T5M	LM2940T5
IC801	BA4558F	SVIBA4558FT1

■ SCHEMATIC DIAGRAM (Parts list on pages 35~38)



SL-CH7

5 6 7 8 9 10 11 12 13 14

ITCH CIRCUIT

D MAIN CIRCUIT

E POWER TRANSFORMER CIRCUIT

(To page 12.) A

CN301

CP790

CN302

G MOTOR

S790 (CLOSE DET.)

S791 (OPEN DET.)

R304 1K

R303 56

C305 1000P

C304 1000P

C303 1000P

R16 1K

R425 4.7K

R426 1K

R427 4.7K

R419 4.7K

C402 0.1

IC401

MN1554PKLI

SYSTEM CONTROL

R451 10K

R420 1M

F=4.2336MHz

R401 4.7K

R402 4.7K

R403 4.7K

R404 4.7K

R408 4.7K

R407 4.7K

R406 4.7K

R405 4.7K

Q4~6, 11
2SD2037EFTA
REGULATOR

Q3
2SA933SQRSTA
SWITCHING (POWER: ON)

IC1
LM2940T5M
REGULATOR

Q1
DTA114TSTP
SWITCHING
(POWER: ON)

Q8
2SB1238QSTV6
REGULATOR

Q2
2SD1862QRTV6
REGULATOR

Q7
DTC124ESTP
POWER: ON
CONTROL

Q9
2SC1740SQSTA
REGULATOR

Q10
2SA933SQRSTA
REGULATOR

ICP12
SRUN20T

D1 ISR35200TB

D2 ISR35200TB

D3 ISR35200TB

D5 ISR35200TB

D7 ISS254TA

D11 M44270MTA

D12 M44056MTA

D13,14 M44068MTA

Short: power "on"

GND TP1 (POWER)

CP11

CN11

T11

AC 5V

AC 31.6V

AC 13V

AC 13V

AC 24.4V

TP2

TP1

Power supply point.

E11

JK801

1 POWER
2 AC
3 B. CLK
4 B. DATA
5 AC
6 B. GND
9 R ch
10 GND
11 L ch

To ST-CH7/ SU-CH7

IC801
BA4558FTI
L.P. FILTER AMP

IC801 (1/2)

Q803
Q804

D801 ISS254TA

D802 ISS254TA

Q803,804
2SD2144STA
MUTING

Q852
DTA124ESTP
MUTING CONT.

Q853
DTC114ESTP
MUTING CONT.

Q854
DTA114ESTP
MUTING CONT.

D852 ISS254TA

D854 ISS254TA

D855 ISS254TA

Q852

Q853

Q854

Q421,422
2SC1740SQSTA
RESET SIGNAL GENERATOR

Q421

Q422

Q431

Q432

Q433

Q434

D401 MA4033HTA

D402 ISS254TA

L431 3.3μH

L432 3.3μH

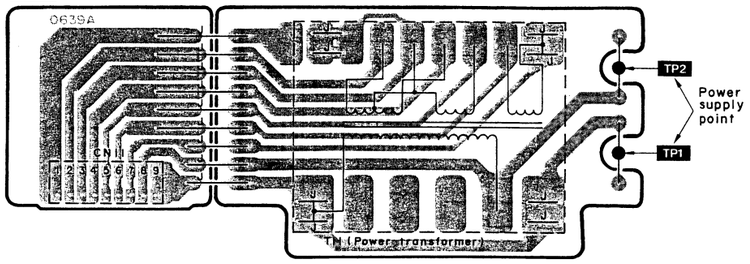
2,434
C144ESTP
LINE DRIVE

1,433
C1740SQSTA
LINE DRIVE

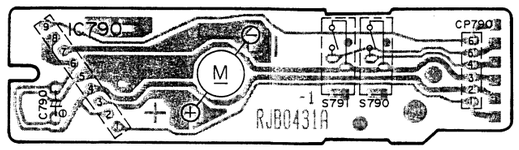
SL-CH7

■ PRINTED CIRCUIT BOARDS

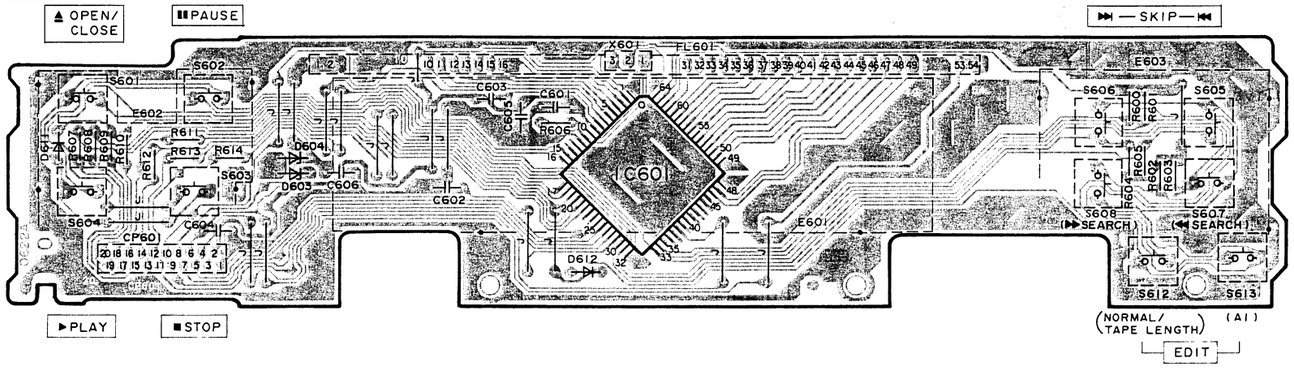
E POWER TRANSFORMER P.C.B.



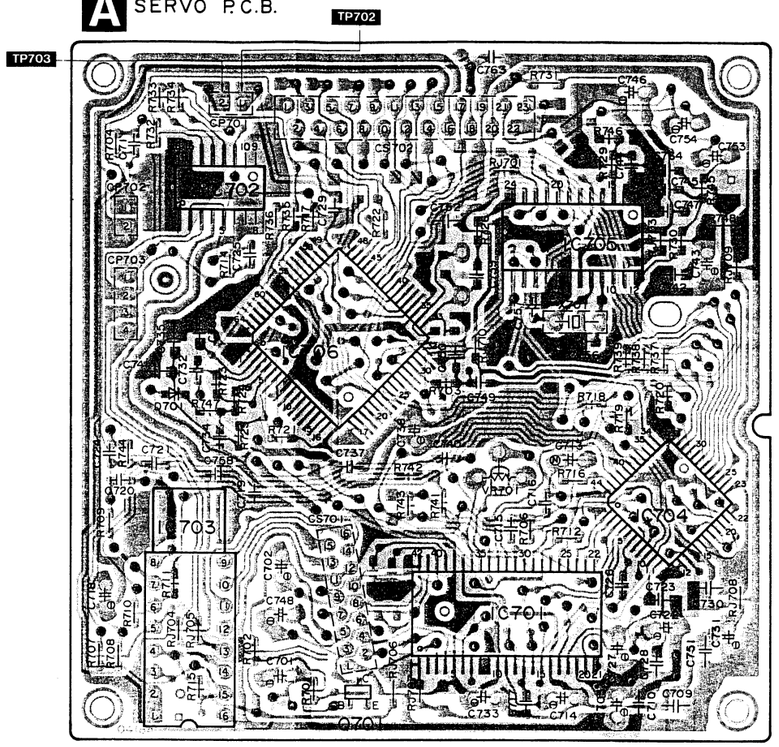
C MOTOR/SWITCH P.C.B.



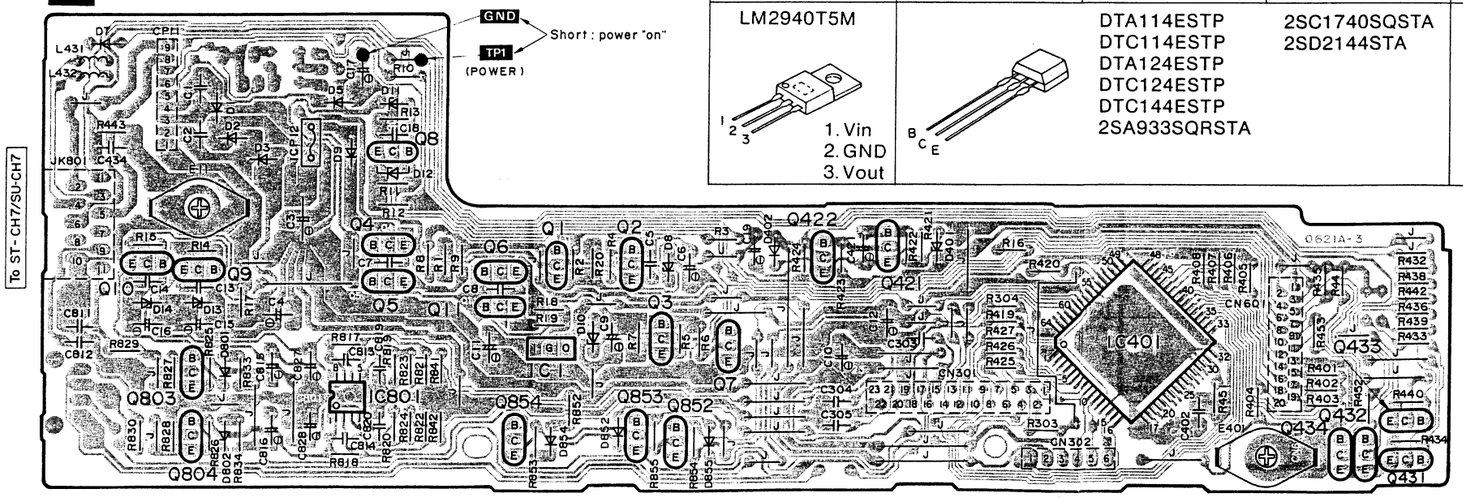
B OPERATION P.C.B.

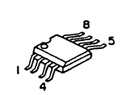
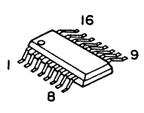
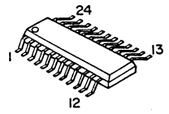
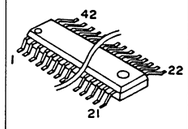
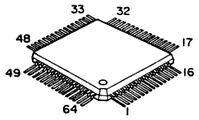
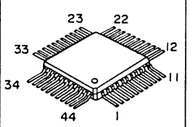
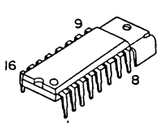
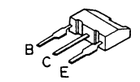
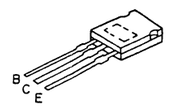
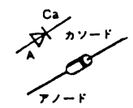
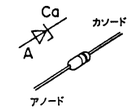
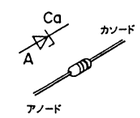


A SERVO P.C.B.

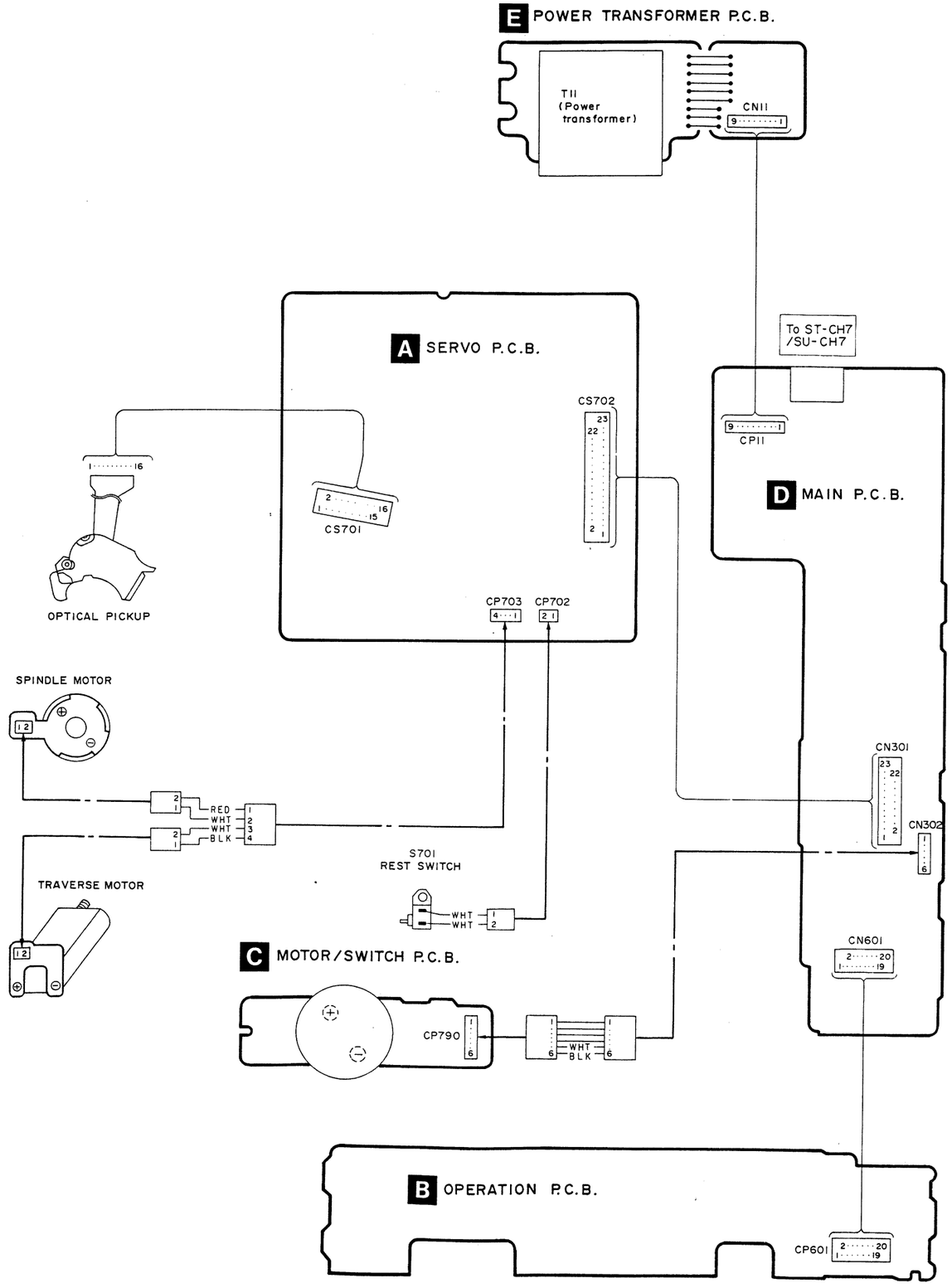


D MAIN P.C.B.

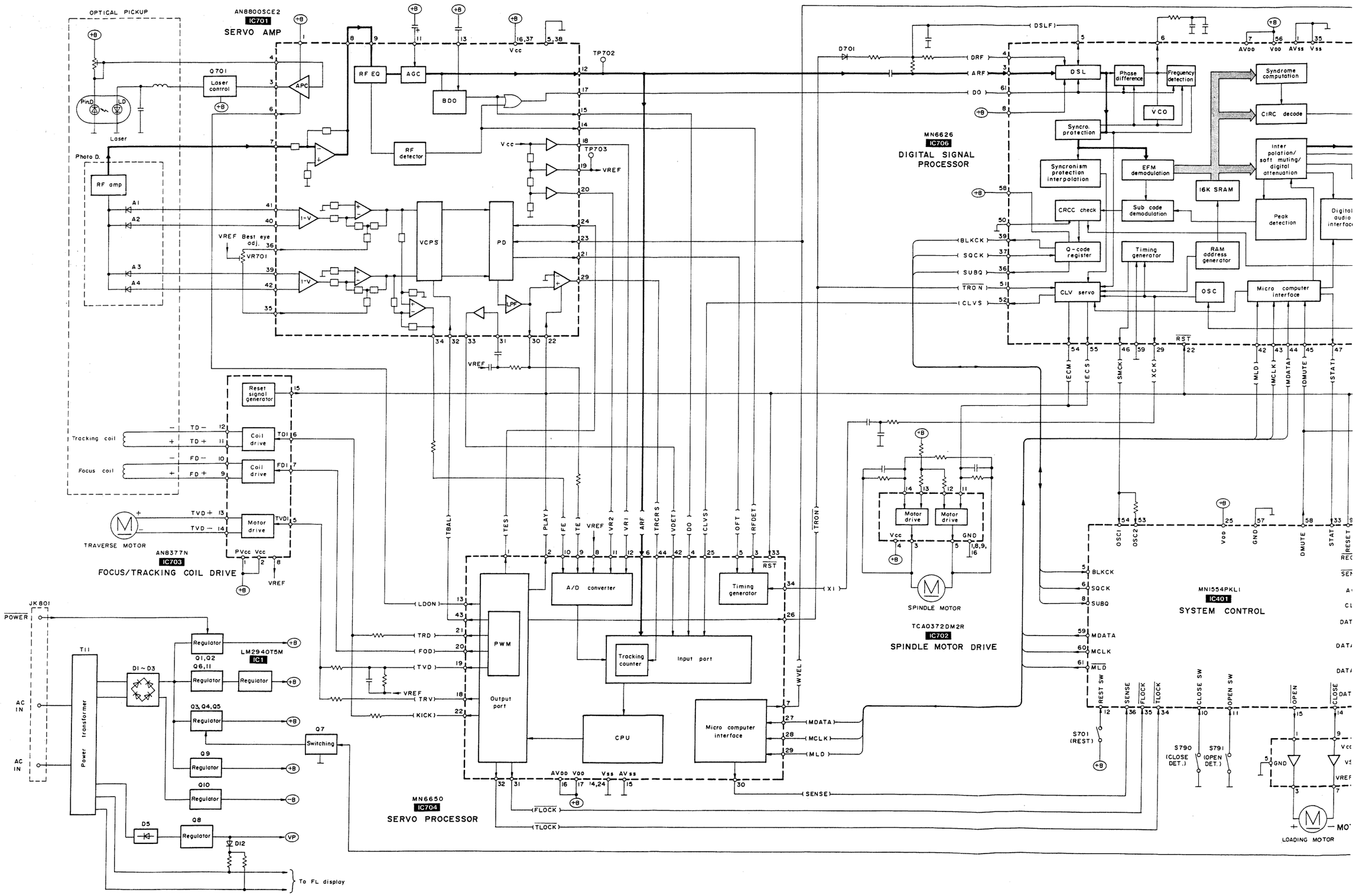


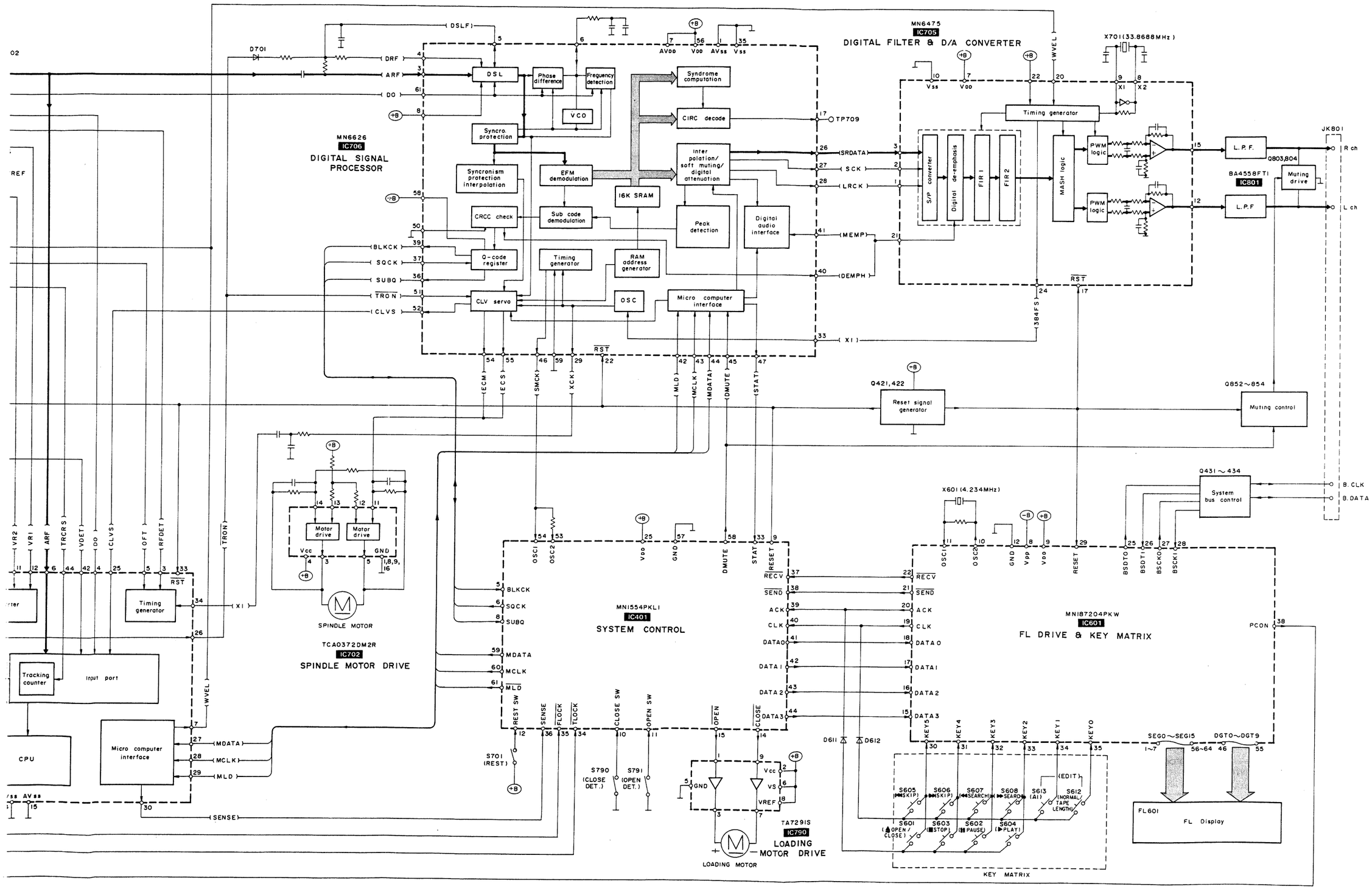
BA4558FT1 	TCA0372DM2R 	MN6475 	AN8800SCE2 		MN6626 MN1554PKL1 MN187204PKW	MN6650 	AN8377N 
LM2940T5M 1. Vin 2. GND 3. Vout		DTA114ESTP DTC114ESTP DTA124ESTP DTC124ESTP DTC144ESTP 2SA933SQRSTA	2SC1740SQSTA 2SD2144STA	2SB1238QSTV6 2SD1862QRTV6 	2SD2037EFTA 	1SS254TA 1SR35200TB 	MA4270MTA 
							MA4039HTA MA4056MTA MA4068MTA MA4082LTA MA4043MTA

■ WIRING CONNECTION DIAGRAM



■ BLOCK DIAGRAM



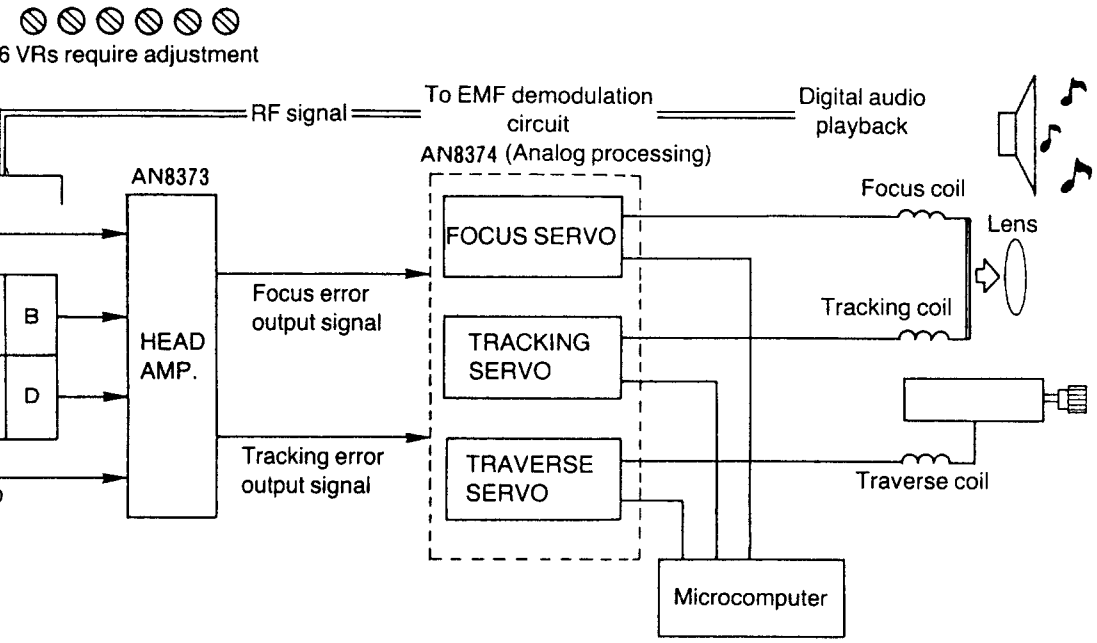

MN6626
IC706
DIGITAL SIGNAL PROCESSOR
MN6475
IC705
DIGITAL FILTER & D/A CONVERTER
X701 (33.8688MHz)
BA4558FTI
IC801
JK801
R ch
L ch
Q803,804
Muting drive
L.P.F.
PWM logic
MASH logic
S/P converter
Digital de-emphasis
FIR 1
FIR 2
Timing generator
Syndrome computation
CIRC decode
Inter polation/ soft muting/ digital attenuation
Peak detection
Digital audio interface
EFM demodulation
Sub code demodulation
16K SRAM
RAM address generator
Timing generator
Syncro. protection
Syncronism protection interpolation
CRCC check
Q-code register
CLV servo
OSC
Micro computer interface
Phase difference
Frequency detection
VCO
DSL
D701
Q421,422
Reset signal generator
Q852~854
Muting control
Q431~434
System bus control
X601 (4.234MHz)
B. CLK
B. DATA
Motor drive
Motor drive
SPINDLE MOTOR
TCA0372DM2R
IC702
SPINDLE MOTOR DRIVE
Timing generator
Tracking counter
Input port
CPU
Micro computer interface
MN1554PKL1
IC401
SYSTEM CONTROL
MN187204PKW
IC601
FL DRIVE & KEY MATRIX
FL601
FL Display
KEY MATRIX
S701 (REST)
S790 (CLOSE DET.)
S791 (OPEN DET.)
TA7291S
IC790
LOADING MOTOR DRIVE
LOADING MOTOR
S601 (OPEN / CLOSE)
S603 (STOP)
S602 (PAUSE)
S604 (PLAY)
S605 (SKIP)
S606 (SKIP)
S607 (SEARCH)
S608 (SEARCH)
S613 (A.I.)
S612 (NORMAL TAPE LENGTH)
(EDIT)
D611
D612
TP709
SEG0~SEG15
DGT0~DGT9
DSLF
DRF
ARF
DO
REF
VR2
VR1
TRCRS
VDET
OFT
RFDET
TRON
WVEL
SRDATA
SCK
LRCK
MEMP
DEMPH
XI
RST
384FS
ECM
ECS
SMCK
XCK
MLD
MCLK
MDATA
DMUTE
STAT
SENSE
BLKCK
SQCK
SUBQ
TRON
CLVS
MDATA
MCLK
MLD
SENSE
OSCI
OSCO
Vpp
Vdd
GND
RESET
BSDTO
BSDTI
BSCKO
BSCKI
PCON
KEY5
KEY4
KEY3
KEY2
KEY1
KEY0

■ DIGITAL SERVO SYSTEM

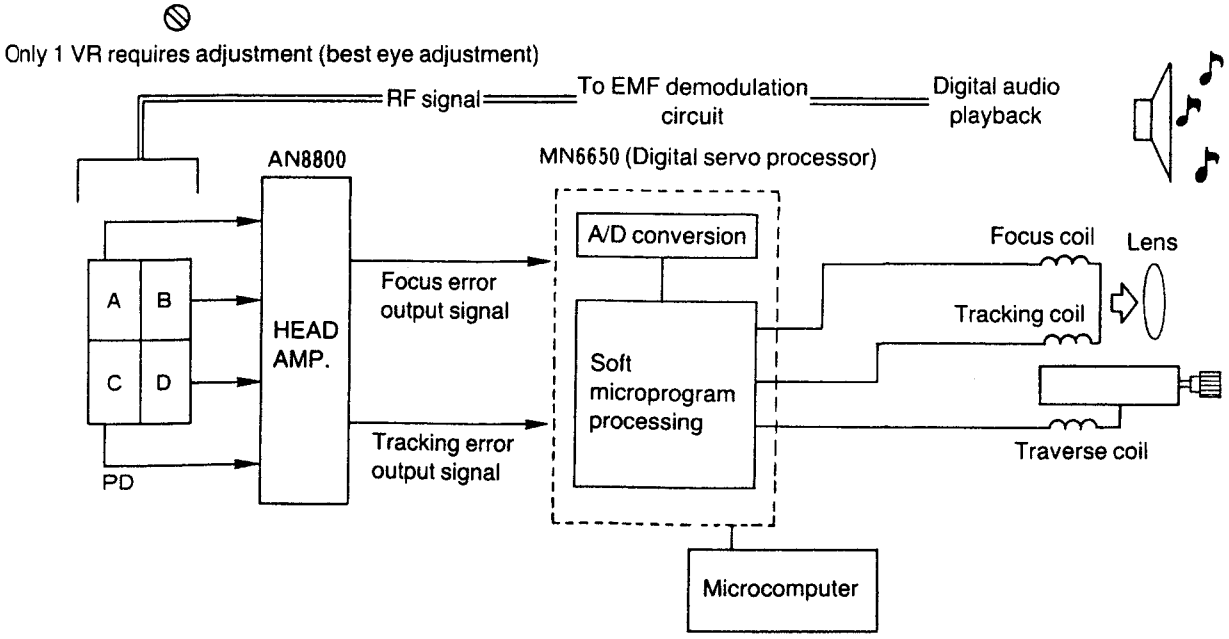
The newly-developed digital servo system is adopted in the servo circuit of the unit's CD player instead of the ordinary analog servo system.

1. The diagrams shown below represent differences between the analog servo and digital servo systems. The HEAD AMP. output signals (i.e., focus error and tracksing error output signals) are analog. These analog signals are converted to the 8-bit digital signals through the MN6650. The MN6650 performs the following adjustments automatically; focus offset, tracking offset, focus gain, tracking gain, and tracking balance adjustments. The outputs from the MN6650 such as the focus coil driving signal, tracking coil driving signal, and traverse motor driving signal are converted to analog signals again and sent to the coils and motor to perform proper servo control for a disc.

ANALOG SERVO SYSTEM



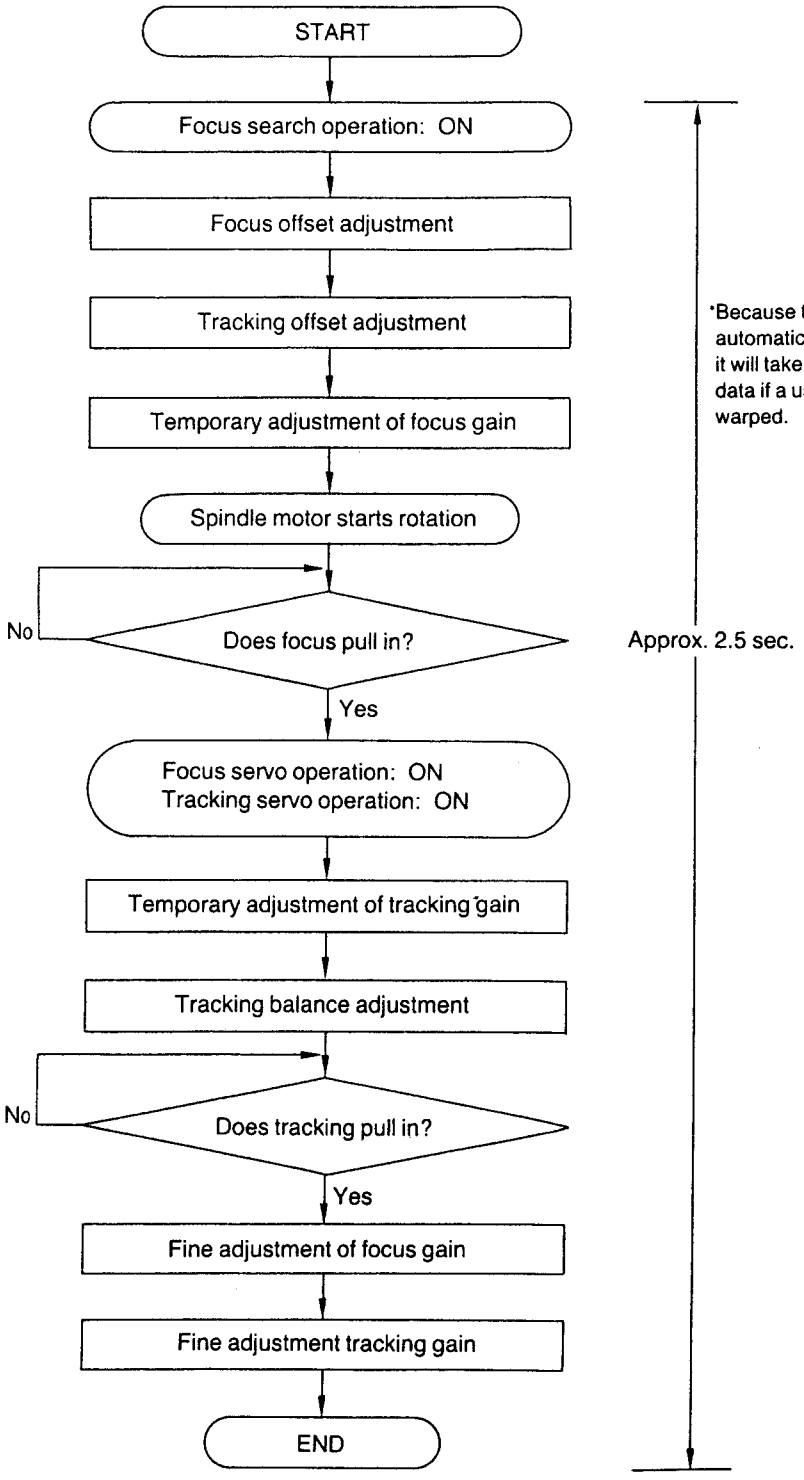
DIGITAL SERVO SYSTEM



2. The servo processor IC MN6650 of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted in the conventional analog servo circuit:
(1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain, and (5) Tracking balance. Therefore, you do not have to perform not the above-mentioned electrical adjustments manually. Only the best eye (PD balance) needs to be adjusted adjustment. You can obtain an optimum servo control for a disc to be played.
[You must perform the best eye (PD balance) adjustment manually.]

The following flow chart shows the sequence of automatic adjustments.

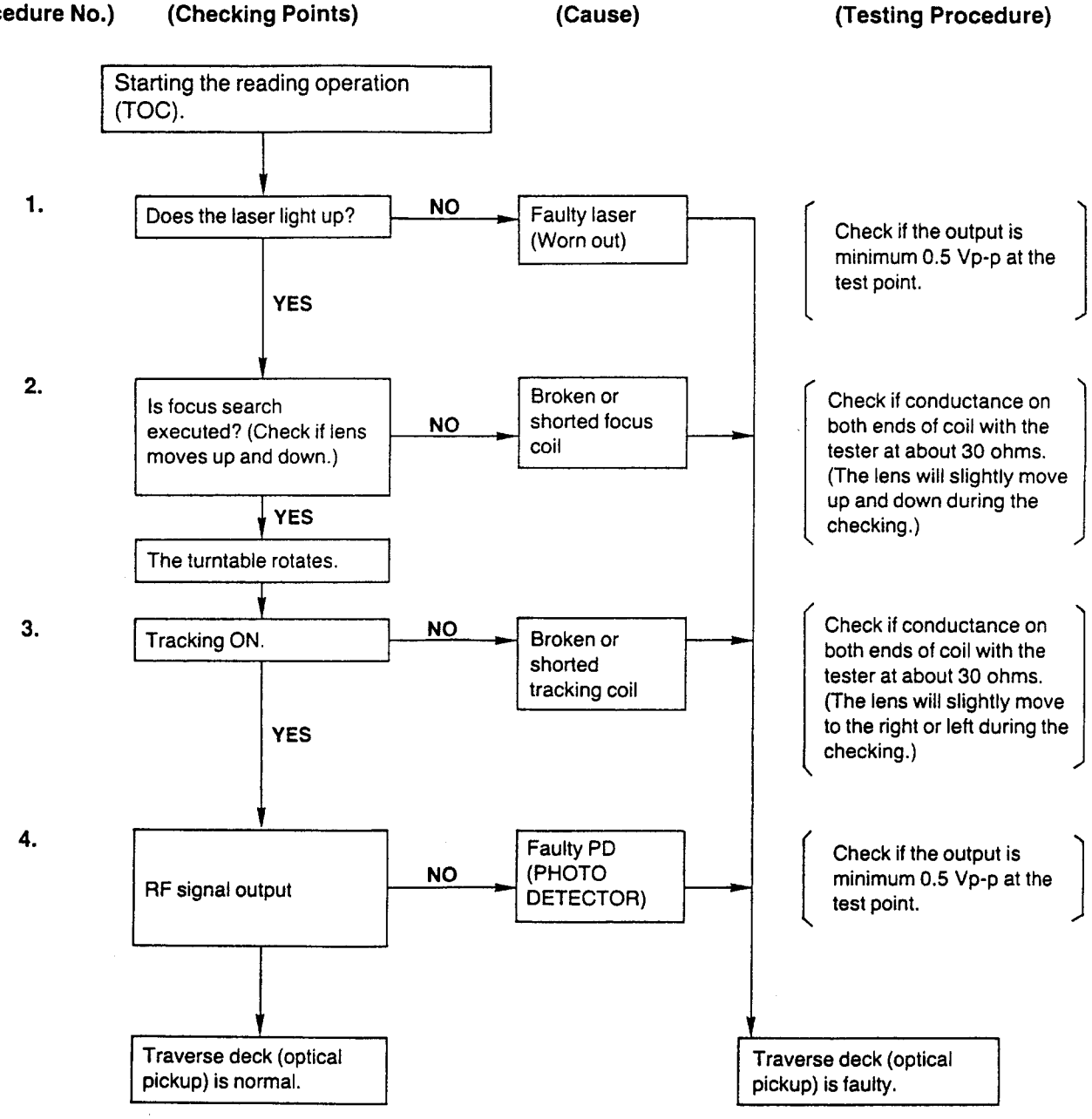
•Flow chart on automatic adjustment sequence


START
Focus search operation: ON
Focus offset adjustment
Tracking offset adjustment
Temporary adjustment of focus gain
Spindle motor starts rotation
No
Does focus pull in?
Yes
Focus servo operation: ON
Tracking servo operation: ON
Temporary adjustment of tracking gain
Tracking balance adjustment
No
Does tracking pull in?
Yes
Fine adjustment of focus gain
Fine adjustment tracking gain
END
*Because the microcomputer precisely performs automatic adjustments as shown in the flow chart, it will take approx. 5 seconds to finish reading TOC data if a used disc is eccentric one or its surface is warped.
Approx. 2.5 sec.

<CD SECTION>

■ CHECKING THE OPERATION PROBLEMS ON THE TRAVERSE DECK (OPTICAL PICKUP)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it. Replace the traverse deck only after the problem is identified.


(Procedure No.)
(Checking Points)
(Cause)
(Testing Procedure)
Starting the reading operation (TOC).
1.
Does the laser light up?
NO
Faulty laser (Worn out)
Check if the output is minimum 0.5 Vp-p at the test point.
YES
2.
Is focus search executed? (Check if lens moves up and down.)
NO
Broken or shorted focus coil
Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move up and down during the checking.)
YES
The turntable rotates.
3.
Tracking ON.
NO
Broken or shorted tracking coil
Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move to the right or left during the checking.)
YES
4.
RF signal output
NO
Faulty PD (PHOTO DETECTOR)
Check if the output is minimum 0.5 Vp-p at the test point.
Traverse deck (optical pickup) is normal.
Traverse deck (optical pickup) is faulty.

※Replace traverse deck.

- Check electrical circuit.
- CD is not adjusted properly. Adjust CD again.
  (1) Mechanical adjustment.
  (2) Focus balance adjustment (PD balance)
  } Refer to page 26
- Check for flaws on disc or if it is warped or not centered.

※Checking Operations of Replaced Traverse Deck (New Traverse Deck)

a) Check the operations described below on the traverse deck after replacing it.

＊Checking Skip Search
1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

＊Checking Manual Search
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

＊Checking Using Defect Disc.
1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

b) If the operations are normal, CD adjustment are not required when the traverse deck is replaced.

Note: CD adjustments are required in the cases below. (Mechanical adjustments are not necessary.)
(See item 1–3 on page 26.)
- If audio is not played back continuously or noises occur after step (a) is excuted.
- If the adjustment VRs (VR701) were rotated before the traverse deck was replaced.
- If the ICs in the servo circuit or adjustment VRs were replaced.

■ MEASUREMENTS AND ADJUSTMENTS

Caution:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
  With the unit turned "on", laser radiation is emitted from the pickup lens.
  Avoid exposure to the laser beam, especially when performing adjustments.

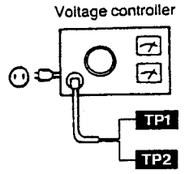
This CD player is powered by the amplifier (SU-CH7). To adjust it or check operations as a separate unit, follow the steps below.

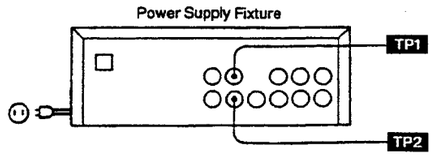
1. Apply a power supply voltage of AC 23 V to TP1 and TP2.

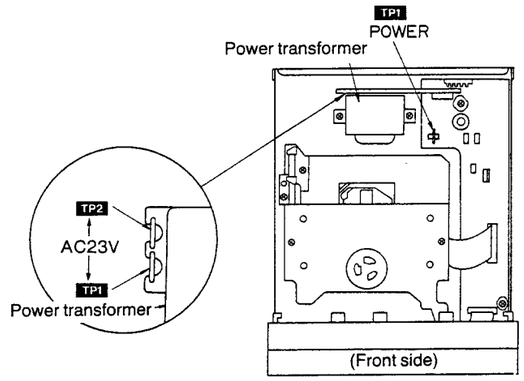
2. Short-circuit TP1 (POWER) and Chassis (GND). (POWER supply switch: ON.)

HOW TO CONNECT

Note:
Apply a power supply voltage of AC 20 V to TP1 and TP2 by using a Voltage Controller. If it is not available, use a Power Supply Fixture (Continental Europe: SZZA1062C, Great Britain: SZZA1063C) instead.







ADJUSTMENT POINT

•Please refer to Circuit Board Diagram for test point location

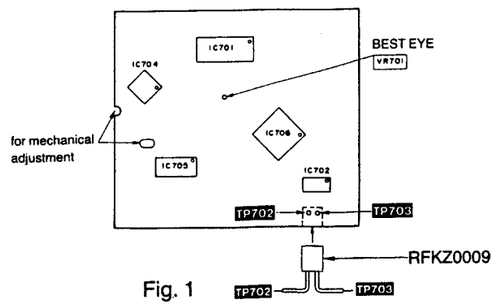


Fig. 1

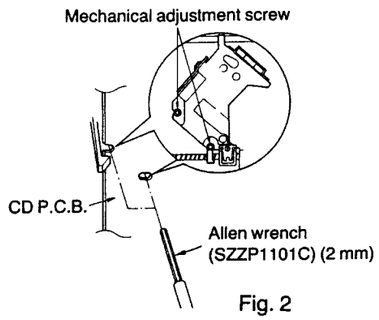


Fig. 2

Caution:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
  With the unit turned "on", laser radiation is emitted from the pickup lens.
  Avoid exposure to the laser beam, especially when performing adjustments.

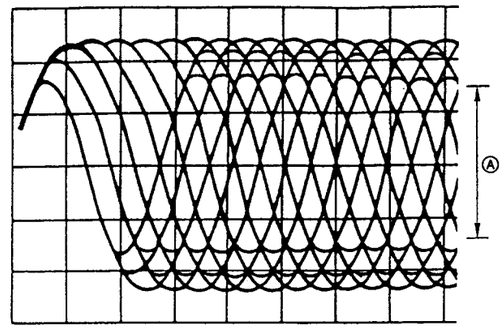
Measuring Instruments and Special Tools

- Test disc
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
- Allen wrench (M2.0) (SZZP1101C)
- Oscilloscope

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability when the traverse deck has not been replaced. Make the electrical adjustments first.

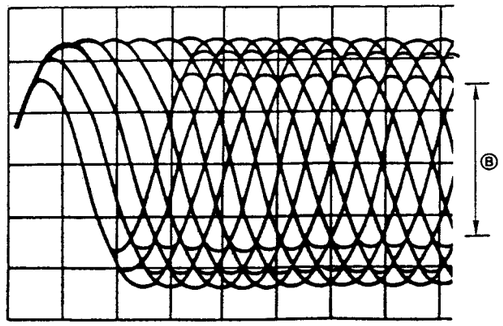
1. Connect the oscilloscope's CH. 1 probe across TP702 (+) and TP703 (V-REF) on the Servo P.C.B.
   Oscilloscope setting:
   VOLT ..... 200 mV
   SWEEP ..... 0.5 µsec
   Input coupling ..... AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench (SZZP1101C) until the RF signal amplitude variation on the oscilloscope is minimized. (Shown in Fig. 2)
5. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZOL01).



Ⓐ Minimize the variation of amplitude.

(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across TP702 (+)and TP703 (V-REF) on the Servo P.C.B.
   Oscilloscope setting:
   VOLT ..... 200 mV
   SWEEP ..... 0.5 µsec
   Input coupling ..... AC
2. Switch the player power **ON**, and play the 1 kHz (track 1) on test disc (SZZP1054C).
3. Adjust **VR701 until the RF signal eye pattern amplitude is maximized.**



Ⓑ Maximize the amplitude

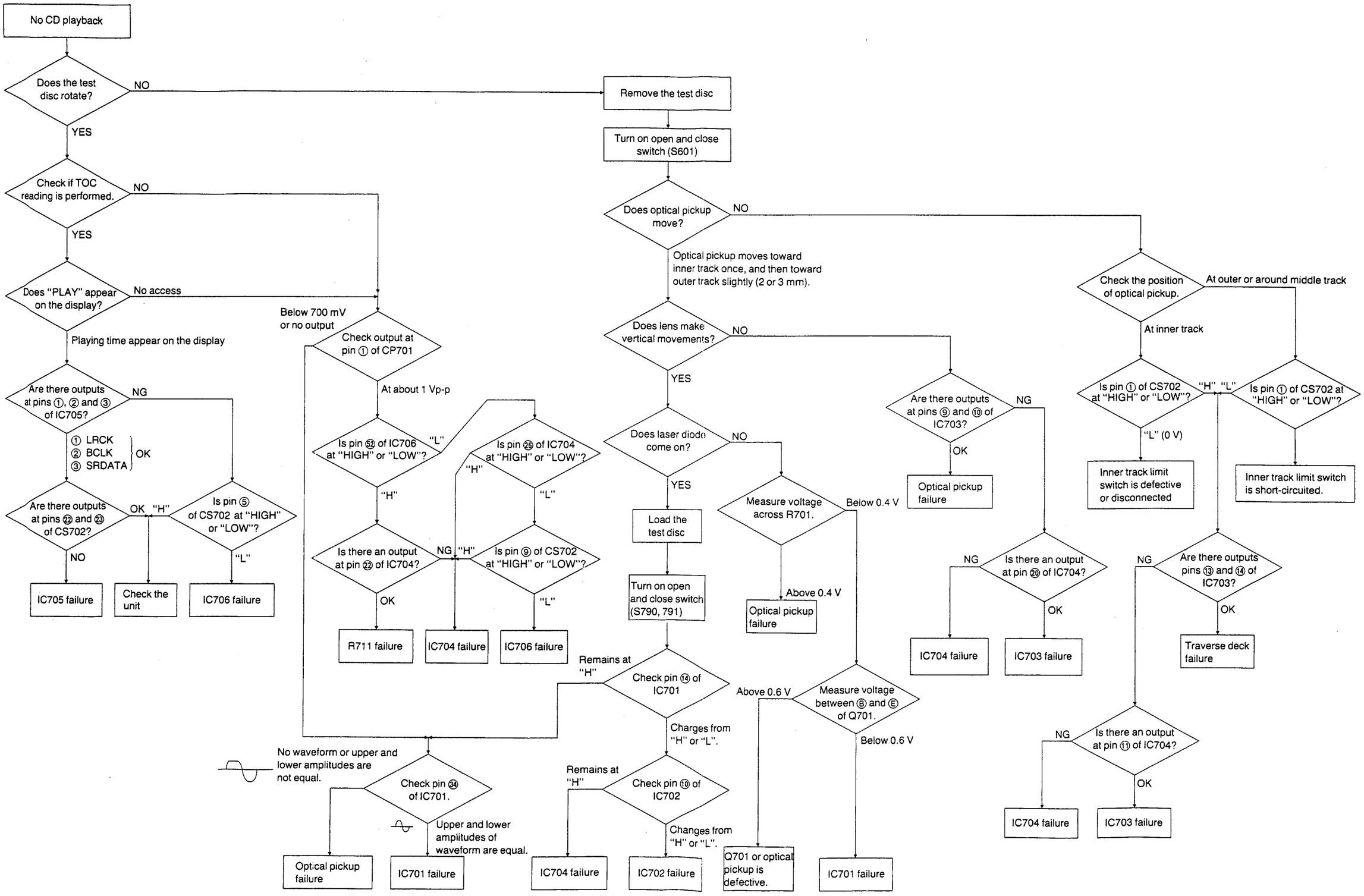
(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

•Checking Skip Search
1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

•Checking Manual Search
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

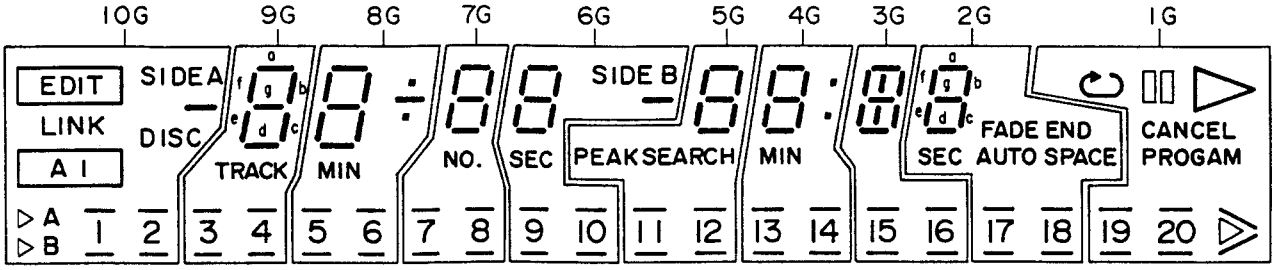
•Checking Playability
1. Play the 0.7 mm black dot and the 0.7 mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

■ TROUBLESHOOTING GUIDE



■ DESCRIPTION OF FL PANEL

•Grid assianment



•Pin connection

Pin No.	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Connection	F2	F2	NP	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	P16	P15	P14	P13	P12	P8	P9	P10	P11	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

Pin No.	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Connection	P5	P6	P7	P4	P3	P2	P1	NP	NP	NP	NP	NP	NP	NP	F1	F1

•Anode connection

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	▷ (A)	a	a	a	a	a	a	a	a	▷
P2	▷ (B)	b	b	b	b	b	b	b	b	□□
P3	LINK	c	c	c	c	c	c	c	c	↻
P4	DISC	d	d	d	d	d	d	d	d	\
P5	AI	e	e	e	e	e	e	e	e	▷
P6	EDIT A/B	f	f	f	f	f	f	f	f	/
P7	—	g	g	g	g	g	g	g	g	CANCEL
P8	—	TRACK	MIN	NO.	SEC	SEARCH	MIN	:	SEC	—
P9	—	—	—	—	—	PEAK	—	—	FADE END	—
P10	SIDE A	—	:	—	SIDE B	—	:	—	AUTO SPACE	PROGRAM
P11	(1)	(3)	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)
P12	1	3	5	7	9	11	13	15	17	19
P13	(1)	(3)	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)
P14	(2)	(4)	(6)	(8)	(10)	(12)	(14)	(16)	(18)	(20)
P15	2	4	6	8	10	12	14	16	18	20
P16	(2)	(4)	(6)	(8)	(10)	(12)	(14)	(16)	(18)	(20)

■ FUNCTIONS OF IC TERMINALS

•IC401 (MN1554PKL1)

Pin No.	Mark	I/O Division	Function
1	MUTE RELAY	—	(Not used, open)
2	$\overline{\text{PLUNGER}}$	—	(Not used, open)
3	$\overline{\text{SYNC}}$	—	(Not used, open)
4	$\overline{\text{SIRQ}}$	I	(Not used, connected to power supply)
5	BLKCK	I	Sub-code block clock signal (f BLKCK=75 Hz)
6	SQCK	O	External clock for sub-code Q resister
7	SBO	—	(Not used, open)
8	SUB Q	I	Sub-code Q code input
9	RESET	I	Reset input
10	CLOSE SW	I	Disc holder "close" detection
11	OPEN SW	I	Disc holder "open" detection
12	REST SW	I	Reset switch signal input
13	NC	—	Not connected
14	$\overline{\text{CLOSE}}$	O	Loading motor "close" command
15	$\overline{\text{OPEN}}$	O	Loading motor "open" command
16 ~ 24	NC	—	Not connected (Pin 17 is connected to GND)
25	V_{DD}	I	Power supply
26 ~ 30	NC	—	Not connected (Pin 29, 30 is connected to GND)
31	FUTA SW	—	(Not used, connected to resistance)
32	MODE	—	(Not used, connected to GND)
33	STAT	I	Status signal (CRC, CVE, CLVS, TTSTOP, FCLV, SQOK)
34	$\overline{\text{TLOCK}}$	I	Tracking servo pull-in signal (L: pull-in)
35	$\overline{\text{FLOCK}}$	I	Focas servo pull-in signal (L: pull-in)
36	SENSE	I	Sense signal
37	$\overline{\text{RECV}}$	I	External data receipt command signal
38	$\overline{\text{SEND}}$	I	External data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 ~ 44	DATA 0 ~ DATA 3	O	Key scan signal
45 ~ 52	NC	—	Not connected
53	OSC 2	I	Clock terminal (4.2336 MHz)
54	OSC 1		
55	X1	—	(Not sued, open)
56	X0	—	(Not used, open)
57	GND	—	GND
58	DMUTE	O	Muting output (Hi mute)
59	MDATA	O	Micro computer command data output
60	MCLK	O	Micro computer command clock signal output
61	$\overline{\text{MLD}}$	O	Micro computer command load signal output
62	D. OUT	—	(Not used, open)
63	EMPH	—	(Not used, open)
64	SERVO RST	—	Not connected

•IC601 (MN187204PKW)

Pin No.	Mark	I/O Division	Function
1 ~ 7	SEG 6 ~ SEG 0	O	FL segment signal output
8	VPP	I	FL motor power supply
9	VDD	I	Power supply
10	OSC 2	I	Clock terminal (4.2336 MHz)
11	OSC 1		
12	GND	—	GND
13 • 14	NC	—	Not connected
15 ~ 18	DATA 3 ~ DATA 0	O	Key scan data output
19	CLK	O	Data lock signal
20	ACK	O	Data discrimination signal
21	/SEND	O	External data transmission command signal
22	/RECV	O	External data receipt command signal
23 • 24	NC	—	Not connected
25	BSDT O	O	System data control
26	BSDT I	I	
27	BSCK O	O	System clock control
28	BSCK I	I	
29	RESET	I	Reset input
30 ~ 35	KEY 5 ~ KEY 0	I	Key scan data input
36	NC	—	Not connected
37	CM	—	GND
38	PCON	O	Servo circuit power switch
39 ~ 45	NC	—	Not connected
46 ~ 55	DGT 0 ~ DGT 9	O	FL digit signal output
56 ~ 64	SEG 15 ~ SEG 7	O	FL segment signal output

•IC701 (AN8800SC-E2)

Pin No.	Mark	I/O Division	Function
1	LDG	I	Loop gain switch for auto pwer control VCC: NORMAL OPEN: +20 dB This machine for "NORMAL"
2	LDP	I	Monitor PD polequality switch for auto power control OPEN: P sub PD GND: N sub PD This machine for "P sub PD"
3	LD	O	Laser diode control output
4	LPD	I	Laser diode power monitor PD signal input
5	GND	—	Analog GND
6	LDON	I	Laser diode auto power control H: ON L: OFF
7	AMPI	I	Reverse amplifier input
8	AMPO	O	Reverse amplifier input
9	RFIN	I	RF AGC input (H: light level)
10	RFEQ	—	GND
11	C.AGC	—	Condenser connection for RF AGC loop filter
12	ARF	O	RF output after AGC (H: light level)
13	C.SBDO	—	Low level detected wave condenser connection for dark level drop-out detection
14	/RFDET	O	RF detection output
15	BDO	O	Black dropout detection output
16	VCC	—	Power supply (+5 V)
17	SDO	O	System dropout dection output
18	VAD+	O	Plus power supply for A/D converter
19	VREF	O	Reference voltage of servo error signal
20	VAD−	O	Power supply for A/D converter

Pin No.	Mark	I/O Division	Function
21	OFTR	O	Off track detction output
22	PLAY	I	"Play" signal input (H: ON, L: OFF)
23	WVEL	I	High speed input (H: high speed L: normal)
24	TES	I	Tracking error shunt signal input (H: shunt L: output)
25	PTO	O	Traverse speed detection signal output
26	PTI	I	Traverse speed detection signal input
27	PBO	O	Potention buffer output
28	PBI	I	Potention buffer input
29	CROSS	O	Tracking error cross detection output
30	TE	O	Tracking error output
31	TEBPF	I	Tremble detection output
32	TBAL	I	Tracking balance adjustment
33	VDET	O	Viblation detection output
34	FE	O	Focus error output
35	FBL2	—	Focus balance adjustment 2
36	FBL1	—	Focus balance adjustment 1
37	VCC	—	Power supply (+5 V)
38	GND	—	GND
39	PDBD	I	Photo detector current input
40	PDA	I	Photo detector current input
41	PDAD	I	Photo detector current input
42	PDB	I	Photo detector current input

•IC702 (TCA0372DM2R)

Pin No.	Mark	I/O Division	Function
1	GND	—	Connected to P.GND
2	NC	—	———
3	VOUT1	O	Spindle motor drive signal output
4	VCC	I	Power supply (+7.5 V)
5	VOUT2	O	Spindle motor drive signal output
6	NC	—	Connected to P.GND
7	NC	—	Connected to P.GND
8	GND	—	Connected to P.GND

Pin No.	Mark	I/O Division	Function
9	GND	—	Connected to P.GND
10	NC	—	Connected to P.GND
11	−VIN2	I	Spindle motor drive signal input
12	+VIN2	I	Spindle motor drive signal input
13	+VIN1	I	Spindle motor drive signal input
14	−VIN1	I	Spindle motor drive signal input
15	NC	—	Connected to P.GND
16	GND	—	Connected to P.GND

•IC703 (AN8377N)

Pin No.	Mark	I/O Division	Function
1	PVCC	I	Driver power supply (+5 V)
2	VCC	I	Power supply (+5 V)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage (+5 V) output
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input

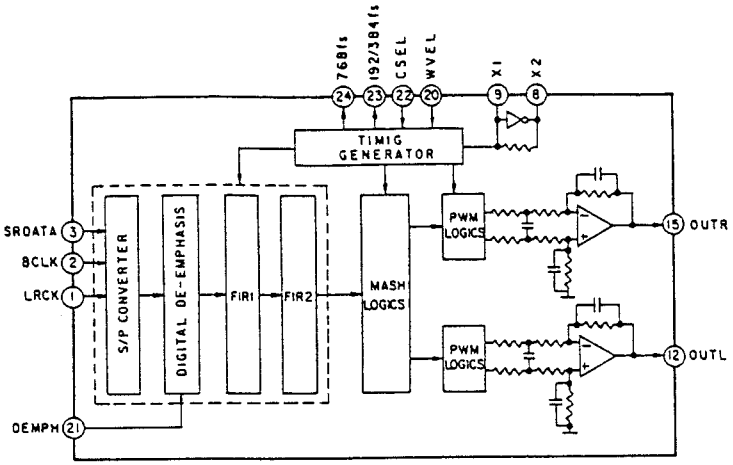
Pin No.	Mark	I/O Division	Function
9	TD−	O	Inverting output of tracking driver
10	TD+	O	Non-inverting output of tracking driver
11	FD−	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD−	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	RESET	O	Reset signal output
16	PC	I	PC input

•IC704 (MN6650)

Pin No.	Mark	I/O Division	Function
1	TES	O	Tracking error shunt signal (H: Shunt)
2	PLAY	O	"Play" signal (H: play)
3	/RFDET	I	RF detection signal (L: detection)
4	DO	I	Dropout signal (H: dropout)
5	OFT	I	Off track signal (H: off track)
6	ARF	I	RF signal input
7	WVEL	O	High speed status signal (H: high speed)
8	PBO	I	Potension buffer signal input (Analog input)
9	TE	I	Tracking error signal input (Analog input)
10	FE	I	Focus error signal input (Analog input)
11	VR2	I	Reference voltage for A/D (Low reverse)
12	VR1	I	Reference voltage for A/D (High reverse)
13	LDON	O	Laser "ON" signal (H: ON)
14	VSS	I	Power supply (Digital system OV)
15	AVSS	I	Power supply (Analog system OV)
16	AVDD	I	Power supply (Analog system +5 V)
17	VDD	I	Power supply (Digital system +5 V)
18	TRV	O	Traverse force transmission output
19	TVD	O	Traverse drive output
20	FOD	O	Focus drive output
21	TRD	O	Tracking drive output
22	KICK	O	Kick pulse output

Pin No.	Mark	I/O Division	Function
23	/TEST	I	Test terminal ("L", normal)
24	VSS	I	Power supply (Digital system OV)
25	CLVS	I	Spindle servo condition signal (H: CLV L: Rough servo)
26	/TRON	O	Tracking servo "ON" signal (L: ON)
27	MDATA	I	Micro computer command data input
28	MCLK	I	Micro computer command clock signal input
29	MLD	I	Micro computer command load signal input (L: load)
30	SENSE	O	Sense signal input
31	/FLOCK	O	Focus servo pull-in signal (L: take-in condition)
32	/TLOCK	O	Tracking servo pull-in signal (L: take-in condition)
33	/RST	I	Reset input (L: reset)
34	XI	I	Clock input (fXI=16.9344 MHz)
35	T0	O	Test terminal ("Open", normal)
36	T1	O	Test terminal ("Open", normal)
37	T2	O	Test terminal ("Open", normal)
38	T3	O	Test terminal ("Open", normal)
39	T4	I	Test terminal ("L", normal)
40	T5	I	Test terminal ("L", normal)
41	T6	I	Test terminal ("L", normal)
42	VDET	I	Vibration detection signal input (H: detection)
43	TBAL	O	Tracking balance adjustment output
44	TRCRS	I	Track cross signal input

•IC705 (MN6475)



Pin No.	Mark	I/O Division	Function
1	LRCK	I	L.R detection signal
2	BCLK	I	Bit clock for SRDATA
3	SRDATA	I	Serial data input
4	COT1	—	Connected to D.GND
5	COT2	—	Connected to D.GND
6	TEST	—	Connected to D.GND
7	VDD	I	Digital system power supply (+5 V)
8	×2	—	Crystal oscillator connection
9	×1	—	Crystal oscillator connection
10	VSS	—	Connected to GND
11	AVDDL	I	Power supply (+5 V)
12	OUT.L	O	Lch output
13	AVSSL	—	Connected to A.GND
14	AVSSR	—	Connected to A.GND
15	OUT.R	O	Rch output
16	AVDDR	I	Power supply (+5 V)
17	/RST	I	Reset signal input (L: reset)
18	PWM	—	NC
19	CP	—	Connected to D.GND
20	WVEL	I	High speed status signal input (H: high speed)
21	DEMPH	I	De-emphasis ON signal (H: ON)
22	CSEL	I	Test terminal
23	192FS/ 384FS	—	NC
24	768FS	O	Clock output

Pin No.	Mark	I/O Division	Function
1	LRCK	I	L/R clock input
2	BCLK	I	Serial input bit clock input
3	SRDATA	I	Serial input date input
4	COT1	—	Test mode input terminal 1 (normal: L)
5	COT2	—	Test mode input terminal 2 (normal: L)
6	TEST	—	Test mode input terminal 3 (normal: L)
7	DVDD	I	Digital system power supply (+5 V)
8	×2	—	Crystal oscillator connection
9	×1	—	Crystal oscillator connection
10	DVSS	—	Digital system ground terminal
11	AVDDL	I	Analog system power supply 1 (+5 V)
12	OUTL	O	Analog output (Lch)
13	AVSSL	—	Analog system ground terminal 1
14	AVSSR	—	Analog system ground terminal 2
15	OUTR	O	Analog output (Rch)
16	AVDDR	I	Analog system power supply 2 (+5 V)
17	RSTB	I	Reset terminal (L: reset)
18	PWM	O	PWM output
19	TP	—	Test terminal (normal: L)
20	WVEL	I	Motion speed switch (H: high speed)
21	DEMPH	I	Digital de-emphasis ON/OFF terminal (H: ON)
22	CSEL	I	Output clock frequency selection terminal of CK192
23	CK192	O	Clock devided frequercy output
24	CK768	O	Clock output

•IC706 (MN6626)

Pin No.	Mark	I/O Division	Function
1	AVSS	I	GND for DSL, PLL circuit (OV)
2	IRFF	I	Reference electric current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias
5	DSLF	O	DSL loop filter
6	PLLF	—	PLL loop filter
7	AVDD	I	Power supply for DSL. PLL
8	RSEL	I	RF signal quality decision terminal
9 ~ 16	TBUS7 ~ TBUS0	O	Test terminal (normal: Open)
17	FLAG	O	Error/frag output
18	IPFLAG	O	Interpolation flag
19	FCLK	O	Crystal frame clock
20	BTTCK	O	Byte clock
21	WDCK	O	Ward clock
22	/RST	I	Reset input
23	TX	O	Digital audio interface output
24	LDG	O	Lch deglitch signal
25	RDG	O	Rch deglitch signal
26	SRDATA	O	Serial data signal
27	SCK	O	Bit clock for SRDATA
28	LRCK	O	L, R discrimination signal
29	XCK	O	Crystal oscillator clock output
30	PMCK	O	1/192 devided frequency clock signal of crystal oscillator
31	CSEL	I	Test terminal (normal: L)
32	PSEL	I	Test terminal (normal: L)
33	X1	—	Crystal oscillator circuit input
34	X2	—	Crystal oscillator circuit output
35	VSS	I	Power supply (OV)
36	SUBQ	O	Sub-code Q-code output
37	SQCK	I	External clock for sub-code Q resister
38	/CLDCK	O	Sub-code frame clock signal
39	BLKCK	O	Sub-code block clock signal
40	DEMPH	O	De-emphasis ON signal
41	MEMP	I	Emphasis signal input (For digital audio interface)
42	MLD	I	Micro computer command load signal input (L: load)

Pin No.	Mark	I/O Division	Function
43	MCLK	I	Micro computer command clock signal input
44	MDATA	I	Micro computer command data input
45	DMUTE	I	Muting input
46	SMCK	O	MSEL=½ devided frequency clock signal of crystal oscillator when "H" level MSEL=¼ devided frequency clock signal of crystal oscillator when "L" level
47	STAT	O	Status signal
48	CRC	O	Sub-code CRC check result (H: OK, L: NG)
49	SUBC	O	Sub-code serial output data
50	SBCK	I	Clock input for sub-code serial output
51	/TRON	I	Tracking servo ON signal
52	CLVS	O	Spindle servo phase synchronization condition signal (H: CLV L: rough servo)
53	PC	O	Sprindle motor ON signal (L: ON)
54	ECM	O	Spindle motor drive signal (Force mode output)
55	ECS	O	Spindle motor drive signal (Servo error signal output)
56	VDD	I	Power supply (+5 V)
57	/TEST	I	Test terminal (normal: H)
58	SSEL	I	SUBQ terminal Output mode switch terminal (H: Q code buffer mode)
59	MSEL	I	SMCK terminal output frequency switch terminal
60	RESY	O	Resynchronization signal of frame synchronization (H: synchronization, L: not)
61	DO	I	Drop-out signal (H: drop-out)
62	EFM	O	EFM signal output
63	PCK	O	PLL extract clock output
64	PDO	—	Phase comparison signal of EFM signal and PCK signal

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
• Warning: This product uses a laser diode. Refer to caution statements on page 2.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	LM2940T5	I. C, REGULATOR	
IC401	MN1554PKL1	I. C, SYSTEM CONTROL	
IC601	MN187204PKW	I. C, SYSTEM CONT. &FL DRIVE	
IC701	AN8800SCE2	I. C, SERVO AMP.	
IC702	TCA0372DM2R	I. C, SPINDLE MOTOR DRIVE	
IC703	AN8377N	I. C, TRAVERSE MOTOR DRIVE	
IC704	MN6650	I. C, DIGITAL SERVO PROCESSOR	
IC705	MN6475	I. C, DIGITAL FILTER	
IC706	MN6626	I. C, DIGITAL SIGNAL PRO.	
IC790	TA7291S	I. C, MOTOR DRIVE	
IC801	SVIBA4558F	I. C, L. P. FILTER AMP.	
		IC PROTECTOR(S)	
ICP12	SRUN20T	IC PROTECTOR	
		TRANSISTOR(S)	
Q1	DTA114ESTP	TRANSISTOR	
Q2	2SD1862QRTV6	TRANSISTOR	
Q3	2SA933SQR	TRANSISTOR	
Q4-6	2SD2037EFTA	TRANSISTOR	
Q7	DTC124EST	TRANSISTOR	
Q8	2SB1238QSTV6	TRANSISTOR	
Q9	2SC1740SQ	TRANSISTOR	
Q10	2SA933SQR	TRANSISTOR	
Q11	2SD2037EFTA	TRANSISTOR	
Q421, 422	2SC1740SQ	TRANSISTOR	
Q431	2SC1740SQ	TRANSISTOR	
Q432	DTC144EKT96	TRANSISTOR	
Q433	2SC1740SQ	TRANSISTOR	
Q434	DTC144EKT96	TRANSISTOR	
Q701	2SB709S	TRANSISTOR	
Q803, 804	2SD2144S	TRANSISTOR	
Q852	DTA124ESTP	TRANSISTOR	
Q853	DTC114ESTP	TRANSISTOR	
Q854	DTA114ESTP	TRANSISTOR	
		DIODE(S)	
D1-3	1SR35200TB	DIODE	⚠
D5	1SR35200TB	DIODE	⚠
D7	1SS254TA	DIODE	
D8	MA4056MTA	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D9	1SR35200TB	DIODE	
D10	MA4082LTA	DIODE	
D11	MA4270	DIODE	
D12	MA4056MTA	DIODE	
D13, 14	MA4068M	DIODE	
D401	MA4039HTA	DIODE	
D402	1SS254TA	DIODE	
D603, 604	MA4043M	DIODE	
D611, 612	1SS254TA	DIODE	
D701	MA110TW	DIODE	
D801, 802	1SS254TA	DIODE	
D852	1SS254TA	DIODE	
D854, 855	1SS254TA	DIODE	
		VARIABLE RESISTOR(S)	
VR701	EVNDXAA00B14	V. R, BEST EYE	
		COIL(S)	
L431, 432	RLQZP3R3KT-Y	COIL	
		OSCILLATOR(S)	
X601	EFOGC4234T4	OSCILLATOR	
X701	RSXZ33M8M01T	OSCILLATOR	
		DISPLAY	
FL601	RSL0080-F	DISPLAY	
		SWITCH(ES)	
S601	EVQ21405R	SW, OPEN/CLOSE	
S602	EVQ21405R	SW, PAUSE	
S603	EVQ21405R	SW, STOP	
S604	EVQ21405R	SW, PLAY	
S605	EVQ21405R	SW, SKIP (REV)	
S606	EVQ21405R	SW, SKIP (FWD)	
S607	EVQ21405R	SW, SEARCH (REV)	
S608	EVQ21405R	SW, SEARCH (FWD)	
S612	EVQ21405R	SW, NORMAL/TAPE LENGTH	
S613	EVQ21405R	SW, AI	
S701	SSHD5-E	SW, REST	
S790	RSH1A005	SW, LOADING CLOSE DETECT	
S791	RSH1A005	SW, LOADING OPEN DETECT	

Ref. No.	Part No.	Part Name & Description	Remarks
		CONNECTOR(S)	
CN11	RJU057W009	SOCKET(9P)	
CN301	RJS1A6823	SOCKET(23P)	
CN302	EMCS0660MT6	CONNECTOR(6P)	
CN601	RJS20Q11ZA	SOCKET(20P)	
CP11	RJT057W009-1	CONNECTOR(9P)	
CP601	RJS20Q11ZA	SOCKET(20P)	
CP701, 702	RJP2G17ZA	CONNECTOR(2P)	
CP703	RJP4G17ZA	CONNECTOR(4P)	
CS701	RJU035T016-1	SOCKET(16P)	
CS702	RJS1A6723-1Q	SOCKET(23P)	
CP790	RJP6G17ZA	PLUG(6P)	
JK801	RJT055K011	CONTROL TERMINAL	
		TRANSFORMER(S)	
T11	RTP1K4J021	POWER TRANSFORMER	⚠

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1	ERD2FCVJ6R8T	1/4W 6.8 ⚠
R2	ERDS2TJ473	1/4W 47K
R3	ERDS2TJ223	1/4W 22K
R4	ERDS2TJ102	1/4W 1K
R5	ERDS2TJ473	1/4W 47K
R6	ERDS2TJ472	1/4W 4.7K
R7	ERDS1FVJ271T	1/2W 270 ⚠
R8, 9	ERDS2TJ1R0	1/4W 1.0
R10	ERDS2TJ3R9T	1/4W 3.9
R11, 12	ERD2FCVG221T	1/4W 220 ⚠
R13	ERDS2TJ222	1/4W 2.2K
R14, 15	ERDS2TJ332	1/4W 3.3K
R16	ERDS2TJ102	1/4W 1K
R17	ERD2FCVJ6R8T	1/4W 6.8
R18, 19	ERDS2TJ1R0	1/4W 1.0
R20	ERD2FCVG220T	1/4W 22
R303	ERDS2TJ560T	1/4W 56
R304	ERDS2TJ102	1/4W 1K
R401-408	ERDS2TJ472	1/4W 4.7K
R419	ERDS2TJ472	1/4W 4.7K
R420	ERDS2TJ105T	1/4W 1M
R421	ERDS2TJ221	1/4W 220
R422-425	ERDS2TJ472	1/4W 4.7K
R426	ERDS2TJ102	1/4W 1K
R427	ERDS2TJ472	1/4W 4.7K
R432	ERDS2TJ470	1/4W 47
R433, 434	ERDS2TJ393	1/4W 39K
R435	ERDS2TJ223	1/4W 22K
R436	ERDS2TJ470	1/4W 47
R438	ERDS2TJ470	1/4W 47
R439, 440	ERDS2TJ393	1/4W 39K
R441	ERDS2TJ223	1/4W 22K
R442	ERDS2TJ470	1/4W 47
R443	ERDS2TJ100	1/4W 10
R451	ERDS2TJ103	1/4W 10K
R452, 453	ERDS2TJ102	1/4W 1K
R600-605	ERDS2TJ472	1/4W 4.7K
R606	ERDS2TJ105T	1/4W 1M
R607-614	ERDS2TJ221	1/4W 220
R701	ERJ6GEYJ100	1/10W 10
R702	ERJ6GEYJ471V	1/10W 470
R703	ERJ6GEYJ102V	1/10W 1K
R704	ERJ6GEYJ103V	1/10W 10K
R706	ERJ6GEYJ473V	1/10W 47K
R707	ERJ6GEYJ222V	1/10W 2.2K
R708	ERJ6GEYJ683V	1/10W 68K
R709	ERJ6GEYJ122V	1/10W 1.2K
R710	ERJ6GEYJ182V	1/10W 1.8K
R711	ERJ6GEYJ473V	1/10W 47K
R712	ERJ6GEYJ471V	1/10W 470
R714	ERJ6GEYJ473V	1/10W 47K
R715	ERJ6GEYJ223V	1/10W 22K
R716	ERJ6GEYJ104V	1/10W 100K
R717	ERJ6GEYJ682V	1/10W 6.8K
R718	ERJ6GEYJ223V	1/10W 22K
R719	ERJ6GEYJ123V	1/10W 12K
R720	ERJ6GEYJ273V	1/10W 27K
R721	ERJ6GEYJ823	1/10W 82K
R722	ERJ6GEYJ102V	1/10W 1K
R723, 724	ERJ6GEYJ104V	1/10W 100K
R725	ERJ6GEYJ471V	1/10W 470
R726	ERJ6GEYJ102V	1/10W 1K
R729, 730	ERJ6GEYJ102V	1/10W 1K
R731	ERJ8GEYJ470V	1/8W 47
R732	ERJ6GEYJ562V	1/10W 5.6K
R733	ERJ6GEYJ332V	1/10W 3.3K
R734	ERJ6GEYJ562V	1/10W 5.6K
R735	ERJ6GEYJ222V	1/10W 2.2K
R736	ERJ6GEYJ682V	1/10W 6.8K
R737-739	ERJ6GEYJ562V	1/10W 5.6K
R741-743	ERJ6GEYJ102V	1/10W 1K
R744	ERJ6GEYJ393V	1/10W 39K
R745, 746	ERJ6GEYJ102V	1/10W 1K
R747	ERJ6GEYJ473V	1/10W 47K
R748	ERJ8GEYJ180V	1/8W 18
R817, 818	ERDS2TJ243T	1/4W 24K
R819, 820	ERDS2TJ473	1/4W 47K
R821, 822	ERDS2TJ273	1/4W 27K
R823, 824	ERDS2TJ473	1/4W 47K
R825, 826	ERDS2TJ122	1/4W 1.2K
R827, 828	ERDS2TJ473	1/4W 47K

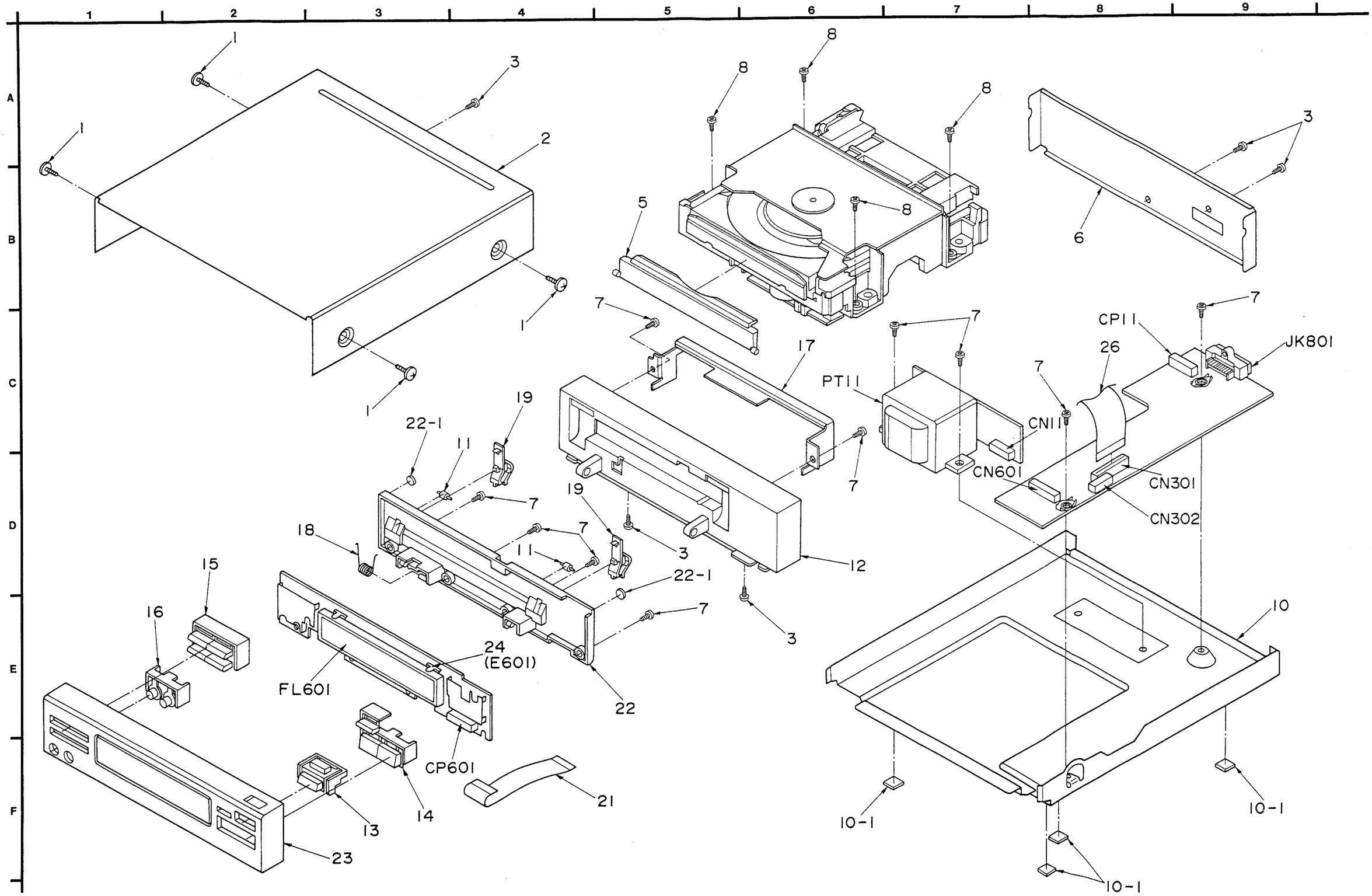
Ref. No.	Part No.	Values & Remarks
R829, 830	ERDS2TJ471	1/4W 470
R833, 834	ERDS2TJ102	1/4W 1K
R841, 842	ERDS2TJ104	1/4W 100K
R852	ERDS2TJ221	1/4W 220
R853	ERDS2TJ102	1/4W 1K
R854, 855	ERDS2TJ472	1/4W 4.7K
		CAPACITORS
C1, 2	ECBT1E103ZF	25V 0.01U
C3	ECEA1EU222B	25V 2200U
C4	ECEA1EU101	25V 100U
C5	ECBT1H102KB5	50V 1000P
C6	ECEA0JKA470B	6.3V 47U
C7, 8	ECBT1H102KB5	50V 1000P
C9	ECEA1AGE101B	10V 100U
C10	ECEA1AU221	10V 220U
C11	ECEA1CGE470B	16V 47U
C12	ECEA0JU221	6.3V 220U
C13, 14	ECBT1H102KB5	50V 1000P
C15, 16	ECEA1AU470	10V 47U
C17	ECEA1HU101	50V 100U
C18	ECBT1H102KB5	50V 1000P
C19	ECEA0JKA470B	6.3V 47U
C303-305	ECBT1H102KB5	50V 1000P
C402	ECBT1H104ZF5	50V 0.1U
C421	ECEA1HKA010B	50V 1U
C434	ECBT1H104ZF5	50V 0.1U
C601	ECBT1H104ZF5	50V 0.1U
C602	ECBT1E103ZF	25V 0.01U
C603-606	ECBT1H104ZF5	50V 0.1U
C701	ECEA0JKA220	6.3V 22U
C702	ECEA0JKS470	6.3V 47U
C703	ECEA0JKS101I	6.3V 100U
C709	ECUV1C224KBM	16V 0.22U
C710	ECUV1C104MBM	16V 0.1U
C711	ECUE1E103MBN	25V 0.01U
C713	ECEA1CSN4R7I	16V 4.7U
C714	ECEA1HKS010	50V 1U
C715	ECUE1H472KBN	50V 4700P
C716	ECUE1C473KBN	16V 0.047U
C717	ECUE1H681KBN	50V 680P
C718	ECEA1AKS101I	10V 100U
C719	ECUE1E103MBN	25V 0.01U
C720	ECUE1E153MBN	25V 0.015U
C721	ECUE1E103MBN	25V 0.01U
C722	ECEA0JKS470	6.3V 47U
C723	ECUV1C104MBM	16V 0.1U
C724	ECUV1E333MBN	H 25V 0.033U
C725	ECUE1E103MBN	25V 0.01U
C726	ECUE1H471KBN	50V 470P
C727	ECEA0JKS470	6.3V 47U

Ref. No.	Part No.	Values & Remarks
C728, 729	ECUV1C104MBM	16V 0.1U
C730	ECUV1C224KBM	16V 0.22U
C731	ECEA0JKS331I	6.3V 330U
C732	ECUE1H102MBN	50V 1000P
C733	ECEA0JKS101I	6.3V 100U
C734	ECUE1E223MBN	25V 0.022U
C735	ECUV1C224KBM	16V 0.22U
C737	ECUV1C224KBM	16V 0.22U
C738	ECEA0JKS101I	6.3V 100U
C739	ECUE1E103MBN	25V 0.01U
C740	ECUE1H472MBN	50V 4700P
C741	ECUV1C224KBM	16V 0.22U
C742	ECUV1C104MBM	16V 0.1U
C743	ECEA0JKS331I	6.3V 330U
C744, 745	ECUE1H102KBN	50V 1000P
C746	ECEA0JKS101I	6.3V 100U
C747	ECUV1C104MBM	16V 0.1U
C748	ECEA1HKS010	50V 1U
C749	ECUE1E103MBN	25V 0.01U
C750	ECUE1H050DCN	50V 5P
C751	ECUV1C224KBM	16V 0.22U
C752	ECUV1C104MBM	16V 0.1U
C753, 754	ECEA1HKS010	50V 1U
C755	ECUV1C104MBM	16V 0.1U
C756, 757	ECUE1H050DCN	50V 5P
C758	ECUV1C224KBM	16V 0.22U
C763	ECUE1E103MBN	25V 0.01U
C764	ECUE1H331KBN	50V 330P
C790	ECA1AKF820E	10V 82U
C811, 812	ECBT1H102KB5	50V 1000P
C813, 814	ECBT1H101KB5	50V 100P
C815, 816	ECEA1HU220	50V 22U
C819, 820	ECBT1H101KB5	50V 100P
C827, 828	ECEA1AU101	10V 100U
		CHIP JUMPER(S)
J701	ERJ6GEY0R00V	1/10W 0
J703-710	ERJ6GEY0R00V	1/10W 0

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS LIST	
1	RHD30007	SCREW	
2	RKM0158-K	CABINET	
3	XTBS3+8JFZ1	SCREW	
5	RGK0357-K	ORNAMENT	
6	RGR0115A-C1	REAR PANEL	(E)
6	RGR0115A-D	REAR PANEL	(GC)
7	XTB3+8JFZ	SCREW	
8	XTB3+8FFZ	SCREW	
10	RFKJLCH7	CHASSIS ASS'Y	
10-1	SHG1654	FOOT	
11	RDP0045	ROLLER	
12	RGP0195-K	FRONT CABINET	
13	RGU0549-K	BUTTON, OPEN/CLOSE	
14	RGU0550-K	BUTTON, STOP	
15	RGU0551-K	BUTTON, SKIP	
16	RGU0552-A	BUTTON, EDIT	
17	RMA0479	ANGLE	
18	RMB0192	SPRING	
19	RMR0415-K	CAM	
21	RWJ5520130CC	CABLE	
22	RFKHLCH7A	FRONT PANEL COVER ASS'Y	
22-1	RMG0113	RUBBER	
23	RFKGLCH7E-K	FRONT PANEL ASS'Y	(E)
23	RFKHLCH7B	FRONT PANEL ASS'Y	(GC)
24 (E601)	RMN0122	FL HOLDER	

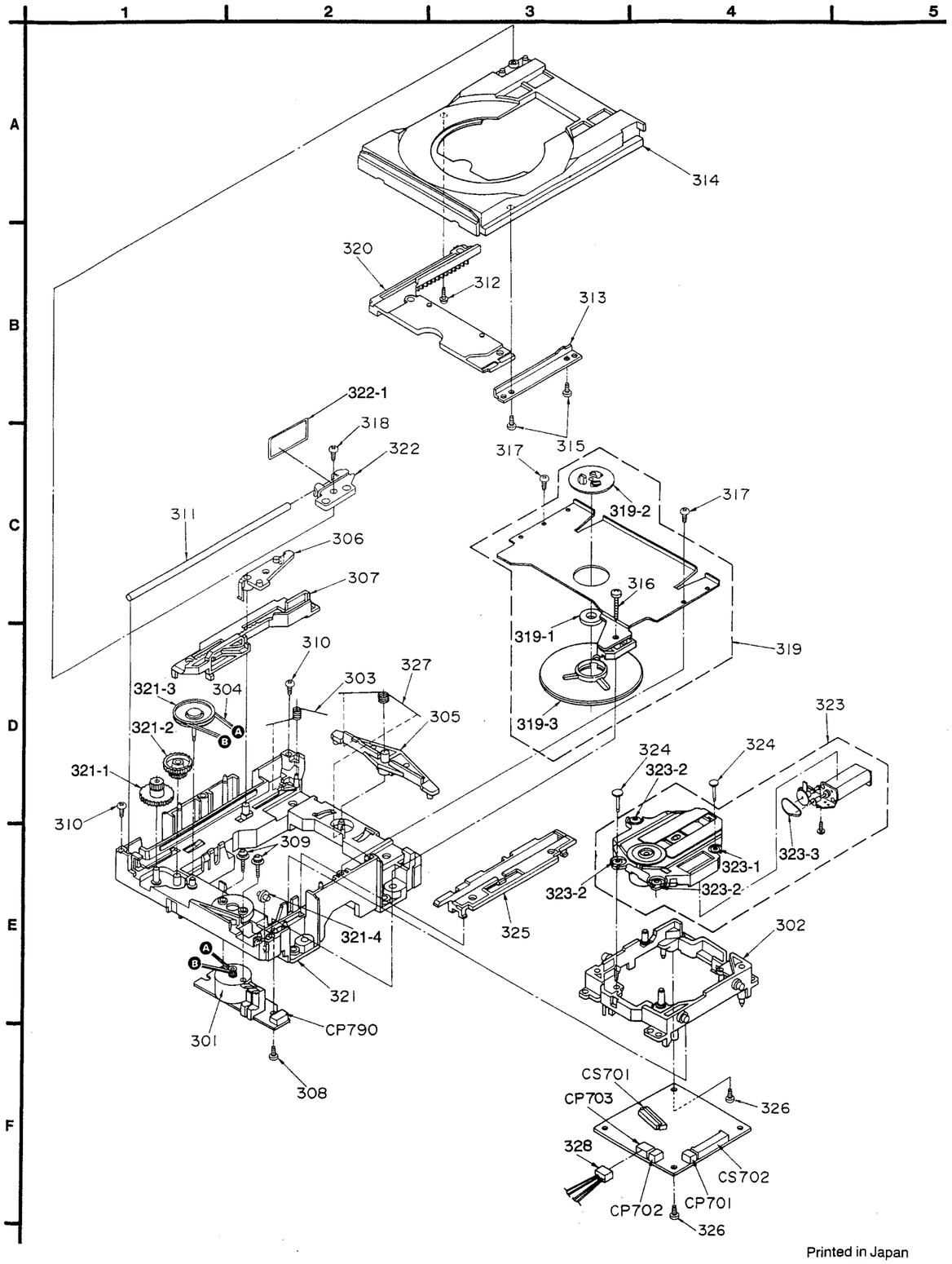
Ref. No.	Part No.	Part Name & Description	Remarks

■ CABINET PARTS LOCATION



Ref. No.	Part No.	Part Name & Description	Remarks
		LOADING UNIT PARTS	
301	REMD019	MOTOR ASS'Y	
302	RMKD105	CHASSIS	
303	RME0063	SPRING	
304	RMG0158	BELT	
305	RML0177	LEVER	
306	RML0178	LEVER	
307	RMMD058	SLIDE PLATE 1	
308	XTN26+6G	SCREW	
309	XYN2+F6FZ	SCREW	
310	RHD20010	SCREW	
311	RMU0046	GUIDE SHAFT	
312	RHD20009-1	SCREW	
313	RMA0328	HOLDER	
314	RMKD103	DISK TRAY	
315	XTN2+8G	SCREW	
316	XTB3+25GFZ	SCREW	
317	XTN26+6G	SCREW	
318	XTN3+8JFZ	SCREW	
319	RXQ0122	TRAY HOLDER	
319-1	RHM245ZA	MAGNET	
319-2	RMR0334	HOLDER	
319-3	RXQ0123	DISK HOLDER	
320	RFKNXDT77B-H	GEAR ASS'Y	
321	RFKJXDT77-H	CHASSIS ASS'Y	
321-1	RDG0142	GEAR	
321-2	RDG0143	DRIVE GEAR 1	
321-3	RDP0041	PULLEY	
321-4	SDRD14	ROLLER B	
322	RFKNXDT77C-H	HOLDER	
322-1	RMG0159	RUBBER	
323	SODD110Z	TRAVERSE UNIT	
323-1	SHGD112	RUBBER A	
323-2	SHGD113-1	RUBBER B	
323-3	RDV0014	BELT	
324	RMS0123-1	PIN	
325	RMMD059	SLIDE PLATE 2	
326	XTV26+6G	SCREW	
327	RME0087	SPRING	

■ CABINET PARTS LOCATION (Loading unit parts)



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ORDER NO. AD9205159S8

Service Manual

Supplement

Compact Disc Player

SL-CH7

Compact Disc Player

Please file and use this supplement manual together with the service manual for Model No. SL-CH7 Order No. AD9104084C8.

Note: This supplement is intended to provide additional information or corrections to the existing service manual for model No. SL-CH7. Be sure to update your service manual for future reference.

Colour

(K) ..... Black Type

Areas

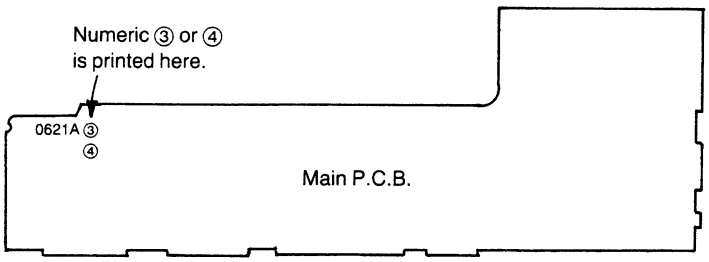
Suffix for Model No.	Area	Colour
(E)	Europe	(K)
(GC)	Asia, Latin America, Middle Near East and Africa	

System: SC-CH7

Resistors have been added to the Main P.C.B. because of performance improvement.
There are two types of the Main P.C.B. on which new resistors are mounted.

■ How to recognize the type of the Main P.C.B.

The numeric ③ or ④ can be found after the Main P.C.B. number.
For the Main P.C.B. on which ③ is printed, see page 2.
For the Main P.C.B. on which ④ is printed, see page 3.



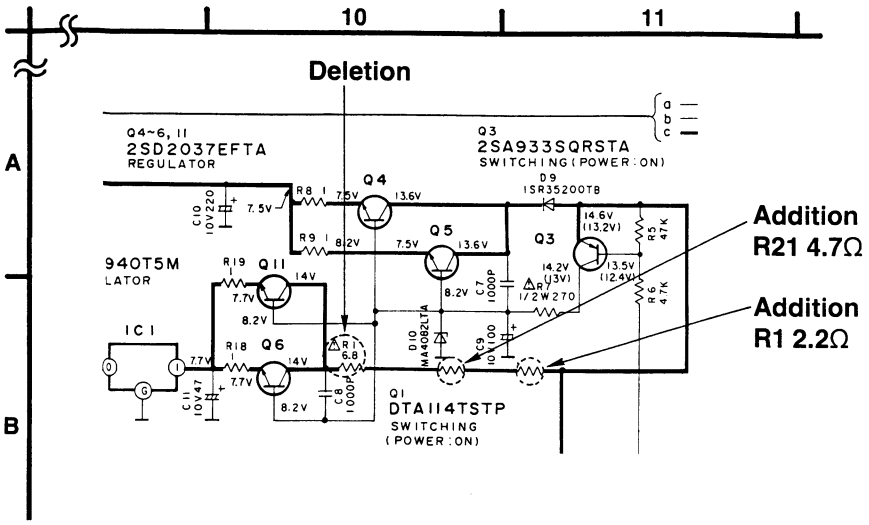
■ REPLACEMENT PARTS LIST

Ref. No.	Change of Part Number		Description	Remarks
	SL-CH7 (E) (GC) (Original)	**SL-CH7 (E) (GC) (Supplement)**		
RESISTOR				
R1	ERD2FCVJ6R8T	—	RESISTORS (6.8Ω)	Deletion
R1	—	**ERQ16NKW2R2E**	RESISTORS (2.2Ω)	Addition
R21	—	**ERDS2TJ4R7T**	RESISTORS (4.7Ω)	Addition

Technics/Panasonic

(E) (GC)

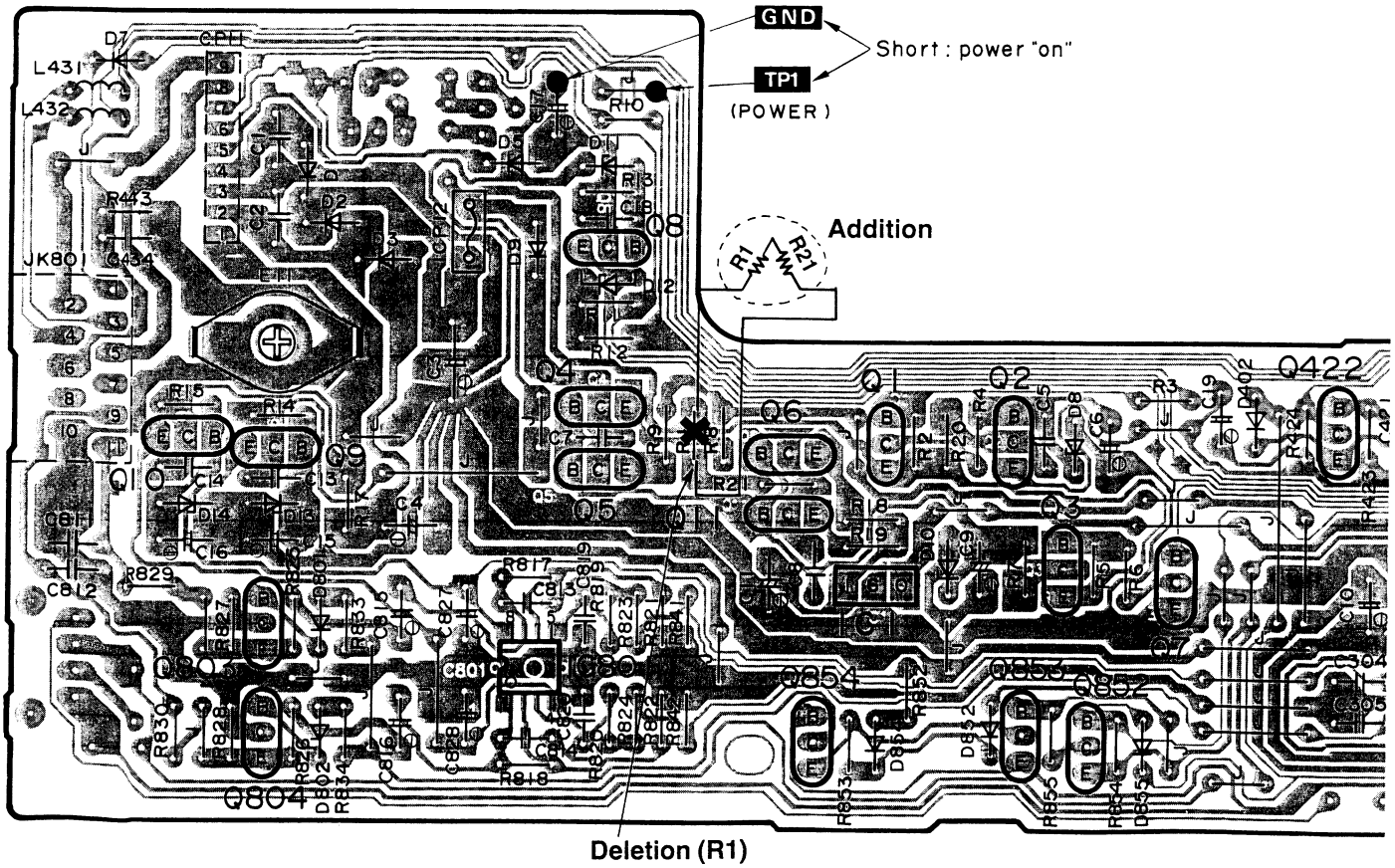
■ SCHEMATIC DIAGRAM



■ PRINTED CIRCUIT BOARDS

For Main P.C.B. ③, refer to the Circuit Board Diagram shown in the Service manual. R1 and R21 are added to this board from the reverse side.

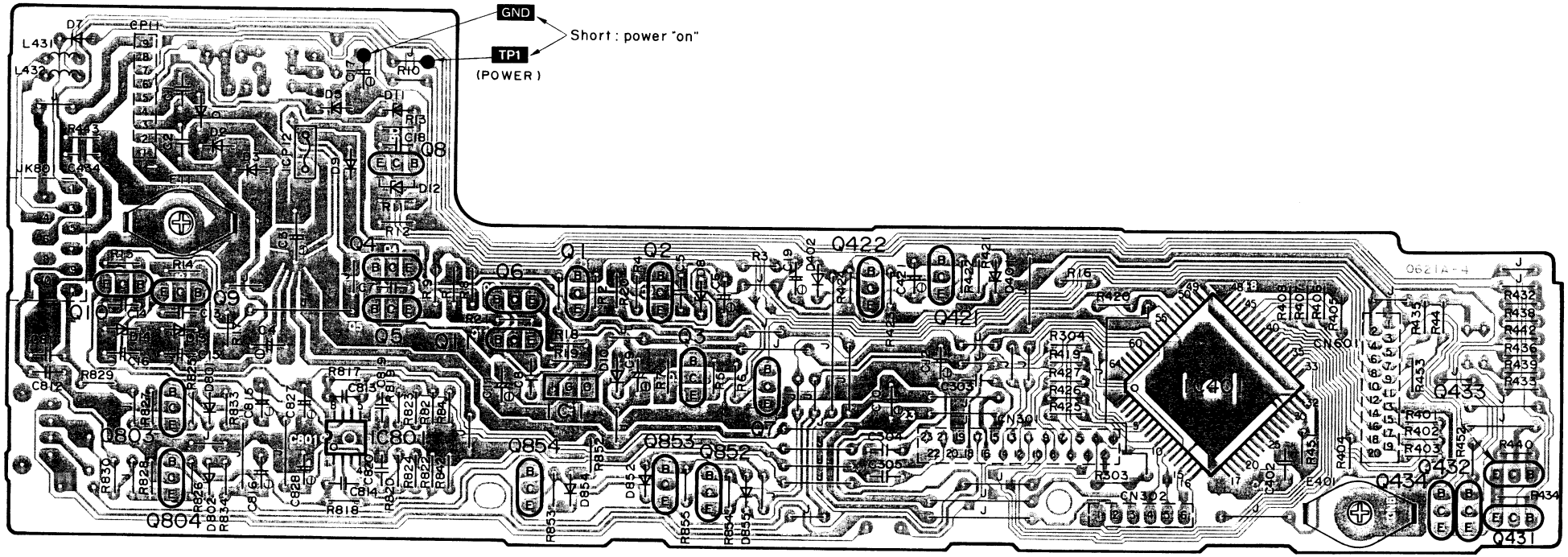
D MAIN P.C.B.



■ PRINTED CIRCUIT BOADS

Refer to this Circuit Board Diagram for Main P.C.B. ④. R1 and R21 are added to this circuit board.

D MAIN P.C.B.



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A6

Service Manual

Compact Deck Player

SL-CH7

Supplement

COMPACT disc DIGITAL AUDIO

Compact Deck Player

Colour

(K)·····Black Type

Please file and use this supplement manual together with the service manual for Model No. SL-CH7 (PP), Order No. AD9101028C1 or Model No. SL-CH7 (E) (GC), Order No. AD9104084C8.

Note: This supplement is intended to provide additional information or corrections to the existing service manual for model No. SL-CH7. Be sure to update your service manual for future reference.

Areas

Suffix for Model No.	Area	Colour
(PP)	U.S.A / Canada	(K)
(E)	Europe	
(GC)	Asia, Latin America, Middle Near East, Africa and Oceania	

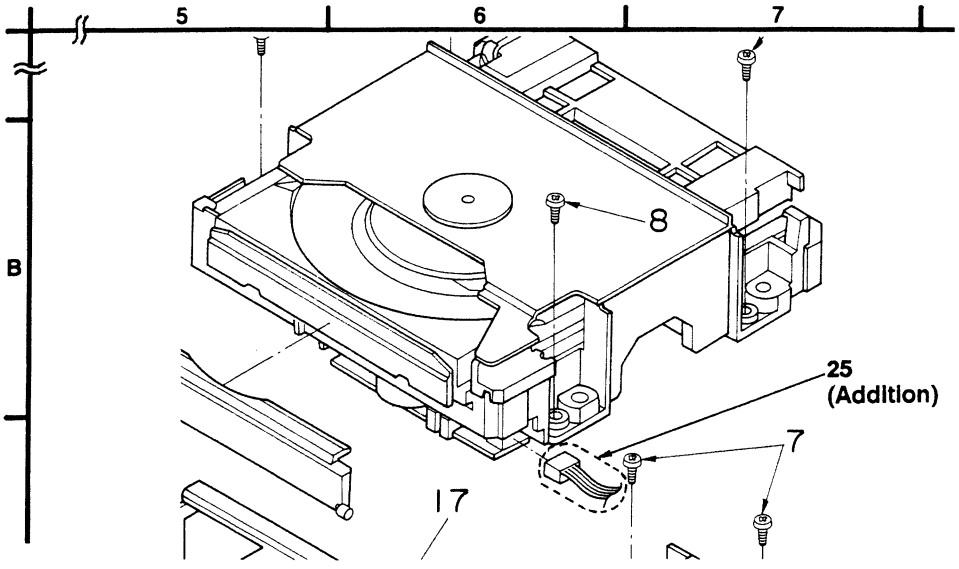
CORRECTION

System: SC-CH7

■ REPLACEMENT PARTS LIST

Ref. No.	Part Number		Description	Remarks
	ORIGINAL	SUPPLEMENT		
CABINET PARTS				
25	————	REX0295	FLEXIBLE CABLE	Addition
26	————	RWJ5223120EE	FLEXIBLE CABLE	Addition
22-1	RMG0113	RMG0265	RUBBER	Change
323-4	————	SNSD38	SCREW	Addition

■ CABINET PARTS LOCATION



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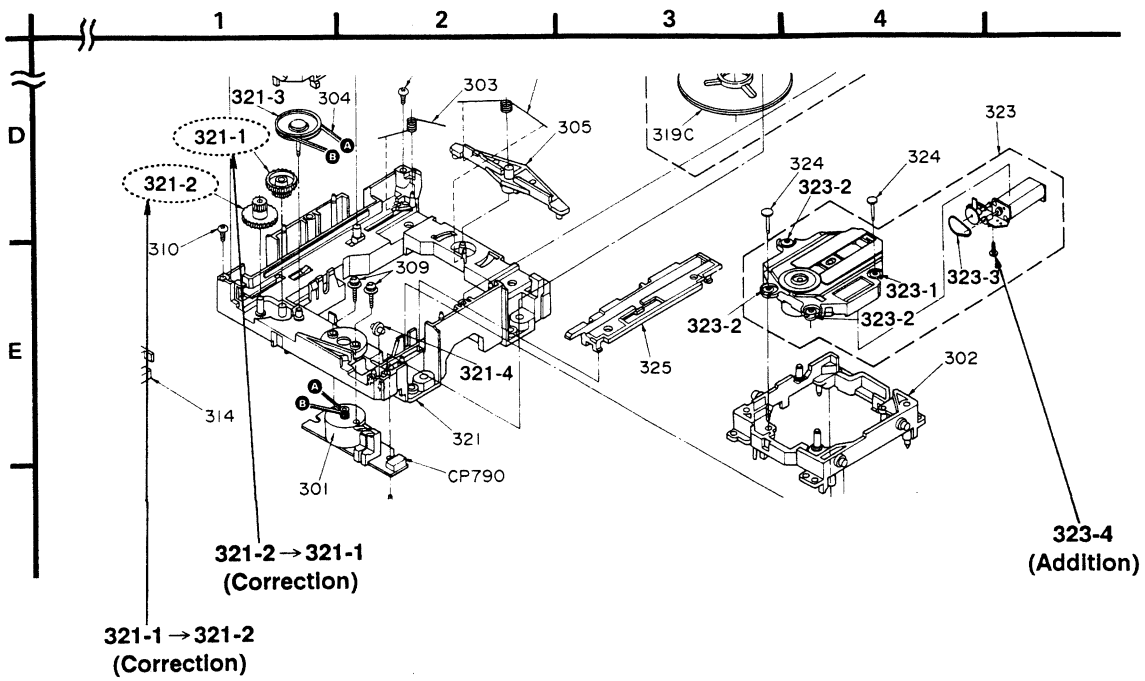
(E) (PP) (GC)

■ CABINET PARTS LOCATION (Loading unit parts)



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